

renew[all]

Intro_

Architecture of future industries as multi-dimensional complexes that explore place, history, ecology, users and upcoming conditions.

This thesis investigates the reclamation, restoration, renewal and rejuvenation of damaged sites located along the banks of the Lachine Canal. By reinterpreting one of Canada's most historically polluting and densely industrialized sites, a dialogue can be established between memory, the present and possibilities for future conditions. The project considers the responsible reindustrialization of a landmark concurrently to the reanimation of a forgotten neighborhood through the implementation of a manufacturing facility of innovative recycled products and through the renovation of existing horse stables in order to improve their present conditions and contest the city's 2025 master plan to gentrify the surrounding area.

Problem_

The objectives focus on three distinct yet overlapping primary concerns: that of Montreal's declining manufacturing sector, the conservation, revitalization, restoration and interpretation of important derelict sites found in the city, and architecture's role in environmental issues.



Throughout the industrial revolution up until the mid 20th century, most major European and North American cities thrived on industrial and manufacturing activities, and Montreal was no exception of such. For over 150 years, Montreal was a prime producer of manufacturing products celebrated for their representation of liberty and endless opportunities⁷. However, the devastating consequences of this industrial era were never foreseen: "global warming, declining resources, shrinking water supplies, polluted rivers, an increasing incidence of cancer and overpopulation."⁷ Today, textile and garment production remain the major types of manufacturing in Montreal; these and other "traditional", or "low-tech", enterprises are nonetheless dwindling in numbers⁷. In fact, the manufacturing sector has seen the most employment decrease and company closures in the past 30 years, resulting in unemployment and ever-increasing vacancies of industrial spaces⁷. Although Montreal has suffered an

economic downfall, its “economic structure can be modernized and its decline can be reversed.”⁷ Equally, the city can learn from its pollution-creating past by ensuring a more responsible operation of its industries.

Many polluted industrial sites have left behind derelict landscapes hinting of their past. Some of these have been forgotten. Others have been reclaimed for new uses and the traces of their former existence have been wiped away, with the mystery and character of their past fully cleansed. The reclamation, restoration, renewal and rejuvenation of such sites are crucial in that the redefinition of existing damaged sites avoids the destruction of virgin territory. The banks of Montreal’s Lachine Canal are a perfect example of the vast number of vacant lots and buildings that have remained after it was home to the largest national cluster of industrial buildings and working-class neighborhoods for over 100 years⁸. In its midst are many “leftover or transitional spaces” that are “key to restoring the complexity and biodiversity of our natural landscape, which has been threatened by agriculture, urbanism, suburban development, and related infrastructure.”⁵ Careful revitalization of these sites by conserving yet reinterpreting and reanimating their historical character would benefit the neighborhood and its users at social, economic and educative levels.

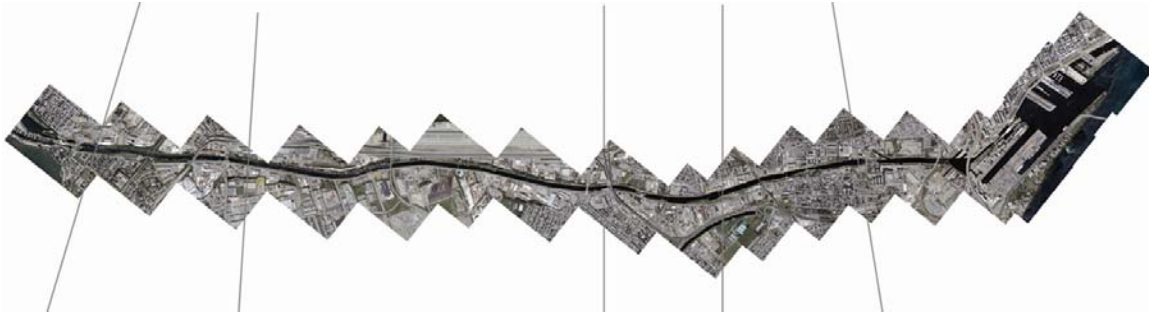
Architecture, as the synthetic physical formation of open and enclosed space, alters the natural environment both visually and physically, and imposes its unnatural presence upon surrounding nature. Most buildings currently encountered are permanent, environmentally intrusive, polluting, and more often than not, designed for a single service lifetime. The issues with much of the past and current architecture are its inherent pull towards isolation from nature, and further, the fact that “any kind of building and construction draws on the earth’s resources, and disrupts the existing ecological balance.”¹ Moreover, urban architecture often “fails to address issues of human scale and the pedestrian’s psychological need for the reduction of large vertical surfaces into a readable level of detail and communicative content.”² Consequently, nearly all architecture is damaging to our natural environment, and fails to capitalize on its potential to serve as an informative compositional element able to communicate environmental concerns and solutions.

Site Description_

Lachine Canal

The Lachine Canal, situated in the southern part of Montreal, is Canada’s oldest and most historically important artificial waterway due to its important role in North America’s industrialization. This narrow water corridor, less than 15 kilometers in length, is geographically divided into six areas, each of which is distinctly characterized by specific traits

and ambiances which speak of its uniqueness and history, and which can furthermore fuel inspiration for interpretations³.



Within these areas, six nodes have been identified as locations ideal for activities and services: these nodes are thought to provide visitors with specific yet complementary experiences as they travel the length of the corridor³. One of these nodes, known as “Pointe-des-Seigneurs,” is located between the Atwater Market and the Old Port, South-West of Guy street. This area offers a great deal of design opportunities and development potential due to its rich historical past and dynamic present conditions that are yearning to be addressed and revealed.



Pointe-des-Seigneurs

The chosen site contains the largest assembly of archeological remains and relics belonging to plants and factories of Canada’s first important industrial territory that have gathered there since 1825⁸. The presence of numerous industrial buildings dating back to the 19th century highlights the wide range of production that took place in this area; the predominant industries were mostly those of wood, iron, wheat and sugar³. Today, the industries still in use along the Canal and in the area are few and far between; many have completely disappeared leaving behind only traces and hints of their existence. Most of the original buildings that remain have either been readapted for different uses or stand vacant with shattered windows and disfigured walls, serving as mute reminders of a once vivid and triumphant past. The specific site in question has undergone five significant periods of transformation and development from 1825 until the present time. Each of these alterations has physically marked the evolution of the site due to the different spatial organizations of the industrial buildings and their subterranean hydraulic networks. Today, the site suffers from soil contamination and can be identified by two nearly vacant plots of triangularly-shaped land. The southern area is composed of overgrown wild vegetation, an abandoned archeological garden and a large concrete slab under which lie many industrial relics which have been identified and are yet to be uncovered.



The northern triangle is home to a horse and carriage company that serves the Old Port of Montreal. Presently, over twenty horses live in crowded, run-down stables, and a large wagon warehouse, the office and administration of the company, a boarded-up abandoned building as well as a scrap yard of miscellaneous machinery and automobiles occupy the lot.



Proposal_

The reindustrialization of a historical landmark by introducing a new type of industrial complex that sensibly and respectfully reinterprets the past, addresses present environmental concerns and offers possible solutions.

Although Montreal's manufacturing sector has been in decline, this economic trend can be reversed, or in the least improved, by manufacturing products whose raw materials do not come from third world countries located half way around the world but rather from our own trash. Montrealers are no exception to North Americans' materialistic 'buy and throw' mentality. Throwaway products, most with built-in obsolescence, have become the norm and as a consequence our "closets, basements, attics and garages" as well as landfills and scrap yards are overflowing with goods and products, so much so that "we can count on the tremendous inventory of recyclable material and manufactured goods" already in over abundance all around us⁹. It is for these reasons that the site should not simply be home to yet another "take, make and waste" industry but rather to accommodate a new type of manufacturing: one that creatively reuses materials in order to recycle them into innovative components for landscape and architectural applications⁴. Creating a new *green* industry in an area once dominated by polluting factories should exemplify the evolution and renewal of industries and illustrate by example the way of the future.



The Lachine Canal is in the midst of a revival. According to Parks Canada, the area already offers many recreational activities, although these activities lack cultural resources and do not yet successfully reveal the canal's history: indeed, cultural values and industrial heritage still linger in the unknown to most of its visitors³. Therefore, careful care must be taken to clearly distinguish between what has already been on Pointe-des-Seigneurs and what is newly grafted, in order to preserve and celebrate any historical traces present on the site. More specifically, Pointe-des-Seigneurs offers many opportunities for revealing a forgotten historic urban landscape, and its revitalization will reanimate an industrial quarter on the brink of abandonment. In addition, renovating, rendering the existing horse stables more public and allowing people to interact with the horses should serve as a reminder that the "post-cheap-oil future" is near and our mobility may soon "compel us to make the most of our immediate environments" by relying "much more on water transport" and other small-scale operations such as horses and wagons⁹.



The architectural language will be one of social, environmental and ecological considerations. The site will not only be a consumer but a producer of energy as well. The project will limit the negative impact of human activity and built forms in order to reduce environmental strains. Moreover, it is important that the building can accommodate different uses in order to ensure its occupation over many generations and avoid its destruction or awkward retrofit⁴. In addition, the building should represent its products and attitude towards society's abusive consumerist ways. Finally, the building should encourage productivity, creativity and collaboration, and most importantly, be a wonderful place to work.



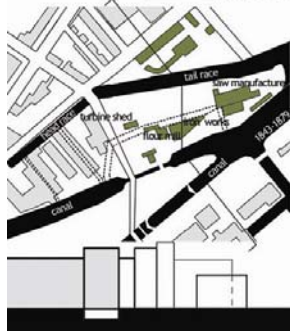
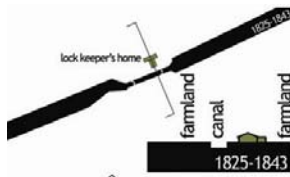
Methodology_

The design methodology stems from the exploration of five primary sources:

- I. Thorough site and surrounding area analysis of traffic flows, building occupancy types, vegetation, natural habitats, orientation, wind direction, sounds, smells, axis and pathways. The mapping, recording and observation of these will lead to shape the overall building forms and placement of certain program elements. Moreover, the documentation through photography of numerous characteristics found in the area (from materials to bridges, signage to scrap yards) will help to inform the design in terms of building materials and site connections.



- II. A historical research of the five distinct periods of development that the site underwent from 1825 until today. Drawing the respective plans and sections will allow for the understanding of the physical evolution of the site in terms of archeological placements and hydraulic networks whose infrastructure still exists today but remains hidden and presently infilled. This study will help determine the areas of the site which contain relics still needing to be exposed and area where the hydraulic networks lie.



1825-1843



- First enlargement of the Canal (1843-1848)
- between 1851 and 1852 the site is subdivided into hydraulic lots and rented to establish industries that use hydraulic power; smaller canals are created to bring water into and out of the site
- in 1872 the western part of the site is occupied with the home of the locks men and the flour mill of Ogilvie; in the centre area there is the workshop and foundry of the Caledonian Iron Works Company and a fabric of agricultural tools of the Smith Brothers; the extreme east of the site is occupied by the Montreal Saw Works company
- it is in the years between 1860 and 1870 where steam starts being used by the industries along with hydraulic power. The steam helps to regulate the turbines or can even make the machinery function on its own
- Canal is expanded for a second time (1873-1884)
- between 1848 and 1879 the Canal's banks industrialize themselves at a remarkable rate

1843-1879



- construction of a "devoisoir regulateur" (in 1882) between the point and the lock allows to better control the level of the water and to regulate the amount of water going into the industries to make the turbines turn
- 1885, canal enlarged again due to introduction of motor boats which are even larger than steam ships
- due to the introduction of steam machinery in the mid 1800s and then that of electricity in the early 20th century, hydraulic power eventually loses its appeal
- this area of the canal is known as "the Smokey Valley"
- highly polluted area with dirt, smog and poor living and working conditions

1879-1907



- due to the introduction of electricity the head canals are closed and filled in as well as the grills for water intake from the canal
- after the 1950s many companies along the Canal went bankrupt or they moved location and abandoned their buildings
- demolition of Ogilvie Flour Mills in 1942 contributed to the clearing of the site along rue des Seigneurs
- 1970, Saint-Laurence Sea-Way is built because the Canal could no longer hold all of its traffic and it could not be enlarged anymore due to all the industries that line its banks
- the site slowly loses its appeal due to techno parks that open in the suburbs
- the leveling off of the spaces adjacent to Hill Engineering, which burnt down and was then completely razed in 1986, determine the final state of the site
- site is abandoned to become a place of untamed urban vegetation

1907-1990



- "La Pointe-des-Seigneurs" became property of the city of Montreal in 2000
- many industrial relics remain to be uncovered in and around the site
- archeological digs were begun in 2001 and came to a stop in 2005 after the digs became unfeasible due to the site's highly contaminated soil

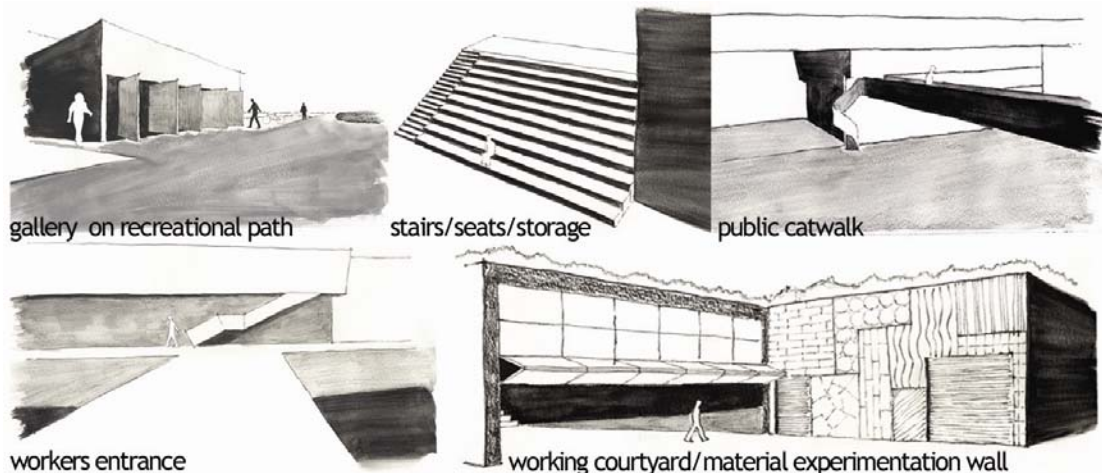
1990-present

- III. Programmatic diagrams to assist in determining the clustering, connection and proximity of program elements.
- IV. Use of environmental principles and ecological considerations to address such principles as natural and low technologies, use of refurbished local materials and contaminated land, orientation to maximize energy flows, natural means of ventilation and illumination, use of local vegetation for cooling and increased natural habitat as well as inside-outside relationships.
- V. Implementation of corporate design strategies.

“The appearance is not only the image, even when it is seen by many in classical philosophy to be so. It is reality. One cannot exist without presenting oneself, and how one presents is how one is”.

Aicher, Olt: The World as Design, Berlin/Ludenscheid, 1991.

The architecture will strive to “communicate the contents and information of the respective company” by using and exposing its products as well as by making itself open and easily accessible to the public⁶.



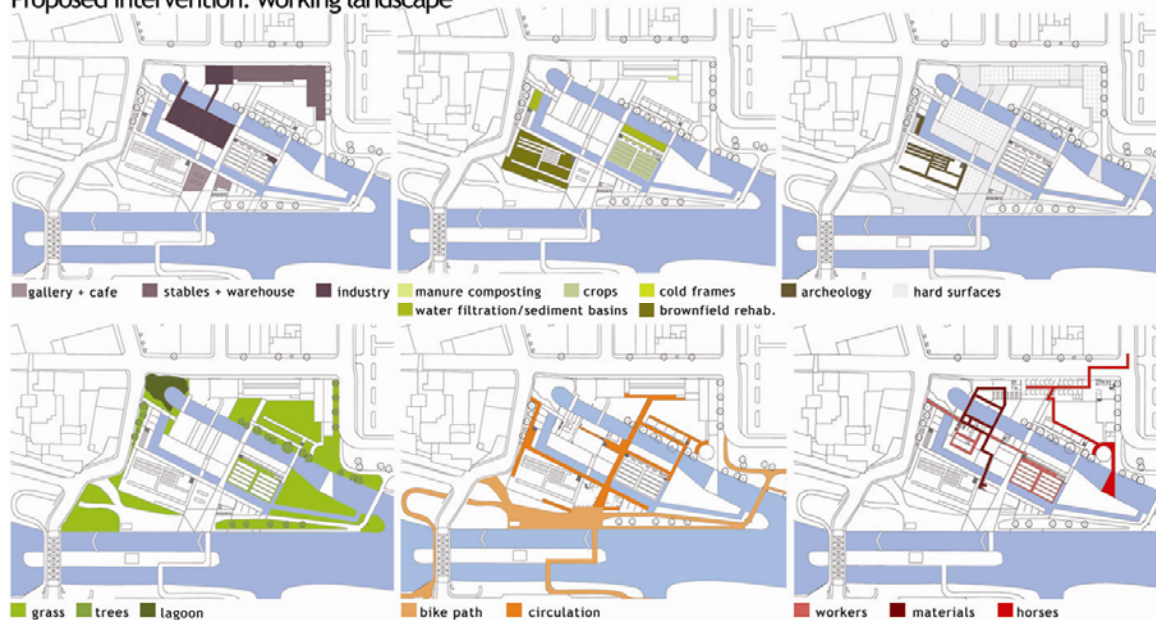
Thesis Project_

In response to the problems posed above and after having followed through with the design methodology and research, the result is a project which responsibly revives a forgotten site and provides visitors with a memorable and stimulating experience that will trigger interest and responsible environmental actions.

The finished product is one which unifies two distinct yet complementary programs. One is a renovated horse and carriage company while the other is an industry which collects/stores and creatively reuses materials in order to recycle them into innovative components for landscape

and architectural applications which are then re-sold to contractors and individuals. Although these two programs may seem misplaced together, having horses mixed with other uses has historically been very common in and around the area. The horse and wagon company has been quietly occupying the site for over fifteen years; this project proposes to renovate the stables in order to give the horses adequate space and to make the company open to the public when desired. People who live in the area, users of the recreational path and the public in general, may visit the stables in order to interact with the horses on numerous levels. Having this component of animal husbandry reminds people of horses' active and important role in humanity's past; one that may soon become our future once more if we do not change our polluting and destructive ways of contemporary living. The new and inventive industry plays a similar yet more obvious role by using waste or surplus to make products rather than using raw materials. The finished products are exhibited and can be purchased in a public gallery which is directly accessible from the recreational path. The industry is also open to be visited by the public and its production space may even be viewed from a catwalk. Moreover, the building itself acts as a medium in order to communicate its content and identity. Overall, the proposal is one of the site's remediation and creation of a working landscape rather than a pleasure landscape. This is where most of the ecological aspects of the project come through. A working landscape here implies a productive rather than leisure area. Productivity in terms of: brownfield rehabilitation through plants, a large garden, cold frames, manure composting, water filtration basins and sediment traps as well as a solar wall. These systems all play an active role in benefiting the environment, the workers and the users while exposing the public to ideas as to how they can make a positive ecological impact.

Proposed Intervention: working landscape



The project reclaims, restores, renews, reinterpretation and rejuvenates a historically rich area that is densely stratified as a result of an intricate past by, in itself, being a multi-dimensional complex composed of numerous layers.

Concluding thoughts_

The reinterpretation of historical landmarks should return the physical reality of the site to the surface in order to develop an architecture of place. For almost two centuries, the Lachine Canal served as a highly significant passage whose banks and infrastructure deeply textured the city of Montreal. The remains of its past should not be razed and substituted with new landscapes and structures mute to the rich history of this location, but rather, should be redeveloped in a contemporary fashion to offer innovations, interactive activities and enlightenment.

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Picture References_ [note: pictures without references were taken by author]

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