A Community of Believers and Healers:

Learning from the functional characteristics of Hôtel Dieu

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Contents

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Abstract

Religious communities have marked the history of Montreal since its founding in 1642, playing a key role in the shaping and developing of the current Montreal landscape and urban form.

This research examines and analysizes one such community, the Hôtel-Dieu, by identifying the functional characteristics of its gardens for the period between 1861 and 1945, such as the production of edible and medicinal plants and the provision of a certain financial autonomy for the regular operations of the community and the hospital.

The study finds that the Hôtel-Dieu shows an important recycling potential, thanks in part to the increasing interest urban residents demonstrate towards urban agriculture, as well as the common objective of living in an aesthetically pleasing and socially integrated community.

The study also offers some historically-grounded contemporary applications of an urban agriculture residential or mixed-use project for the Hôtel-Dieu's site.

Résumé

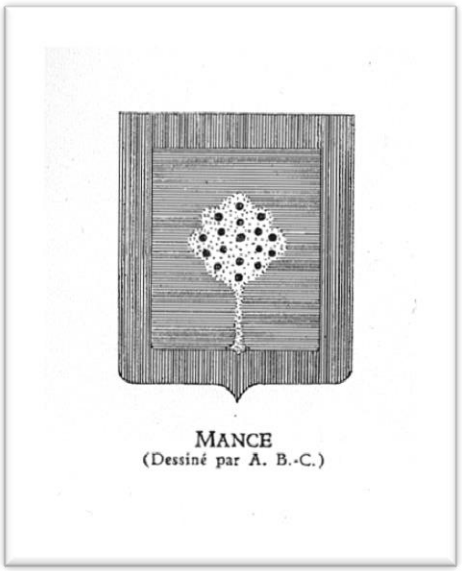
Les communautés religieuses ont marqué l'histoire de Montréal depuis sa fondation en 1642 et ont joué un rôle important dans la formation et le développement du paysage et de la forme urbaine actuelle de la ville.

Cette recherche vise à identifier les caractéristiques fonctionnelles des jardins de l'Hôtel-Dieu durant la période 1861-1945, telles que la production de plantes comestibles et médicinales, aini que la capacité de ces jardins d'offrir à la communauté religieuse une certaine autonomie financière pour les activités régulières de la communauté et de l'hôpital.

L'étude permet de constater que le site de l'Hôtel-Dieu présente un important potentiel de recyclage en vertu notamment de l'intérêt grandissant des citadins pour l'agriculture urbaine, ainsi que l'objectif partagé par tous de vivre au sein d'un environnement eshétiquement agréable et socialement intégré.

L'étude offre finalement quelques suggestions d'applications contemporaines des leçons tirées de l'histoire de l'utilisation du site pour un éventuel projet mixte ou résidentiel intégrant une composante d'agriculture urbaine communautaire.

Aux Religieuses Hospitalières de Saint-Joseph de Montréal



Source : RHSJ

Introduction

Problematic

Many elements such as climate geography influenced the evolution of Quebec's landscape. However, the establishment of various religious communities throughout the history of the province is probably one for which the impacts are most visible. The land sub-division and control, village cores, urban environments and indeed entire rural landscapes have been forged through time by these communities and their buildings.

At the end of the 19th century, Montreal was called " *la ville aux cent clochers* " by the American writer Mark Twain referring to the numerous church spires and bells which dotted the landscape of the city. This is because a large number of religious communities settled on the island over time, and the establishment of these communities played an important role in the shaping and developing of the current Montreal landscape and urban form.

One of the communities that have most marked the history of Montreal since its founding in 1642 are the Sulpician.

"[...] *towards the end of the year 1641, the latter organization had sent to New France a number of settlers under the command of Paul Chomedey de Maisonneuve, in order to found a city on the island of Montreal consecrated to the Virgin Mary: This was done in May, 1642. For fifteen years the settlers at Ville-Marie were looked after, in so far as their spiritual needs were concerned, by the Jesuit Fathers*" (Maurault, 1948).

In 1663, they became "*Seigneurs*" (lords) of Montreal. This title gave them the right to grant land and trace routes. As lords, the Sulpician also constituted seignorial domains.

One of those domains, which had the main purpose of accommodating an amerindian mission, was located onMont-Royal. On the domain, there was a fort, an Amerindian's housing , many fruit trees and vines as well as an extensive vegetable garden. The domain was protected by a wooden palisade. This domain was the first example of the religious complexes that would later on dot the montreal region.

These communities were for the most part living in a self-sufficient way that explains in part why they became such experts in the fields of agriculture and agronomy. Most of these religious communities were actually cultivating the land since the foundation of Montreal in order to survive. What we now call "urban agriculture" isn't a 21st century invention, for early settlers who came to and settled New France, and especially religious communities, had already been practicing it for a long time.

Today, the vast interior spaces of these religious compounds might seem like they lack a specific purpose but they are in fact remarkably well designed in regard to the particular needs of the community that inhabits them – most notably the fact that they derived their subsistence from their extensive gardens. The orchard and vegetable gardens produced fresh fruits and vegetables, with animals from the pasture producing milk, eggs and meat.

"The religious communities were truly living in self-sufficiency, for that they had to live off the capital of the land they owned and exploited for agricultural products, wood and maple syrup. The land market was such that renting part of their properties was allowing them to support their charity work. The massive size of these domains mirrored the large social and cultural responsibilities that were at this time devolved to the Catholic Church. " (Turgeon, 2005 : free translation).

Land was converted and taken care of not only by the religious people. They rented out their lands to farmers who were often required to pay them back with part of their harvest's production or other agricultural or dairy products. This allowed them to subsist and also support their services and charity work.

Within these religious complexes, the garden was an essential element of the community. The primary functions of the garden were obviously to produce food and provide financial autonomy to the community, but they also had a spiritual, contemplative function as a symbol of a particular way of life where agriculture represented both utility, beauty, faith, service and commercial returns. In a lot of ways, the embodiment of this way of life in a urban context was a precursor to urban agriculture as we now know it.

Nowadays, in a context where religious practice is declining, religious heritage complexes, which comprises a wide range of buildings such as convents, schools, hospitals and nursing facilities, are either going for sale or simply closing. Religious institutions are obviously facing a radical decline in attendance and frequently cannot bear the costs of maintaining the real estate they have been owning for centuries, of which many are hard to effectively convert.

The challenges in converting these complexes come not only from the need to respect their architectural qualities and historic significance, but also from the fact that most municipalities lack incentives to properly address the related issues. As François Dufaux, a University Laval professor, explains on this particular subject :

"*Puisque les propriétés religieuses jouissent d'une exemption de taxes municipales, les villes n'ont pas d'incitatif à en augmenter la valeur foncière. Or, lorsque ces domaines passent à des intérêts privés, les nouveaux propriétaires ne bénéficient pas de*

l'exemption fiscale municipale. De plus, à cause de la faible évaluation foncière, ils ont de la difficulté à emprunter les sommes qu'il faudrait pour rénover ou transformer. À court terme, c'est donc plus payant pour eux de tout raser pour construire des condos à la place" (Beaucher, 2010).

We are now at a crossroad. Some of these complexes have been sold, like the mother house of the nuns of *Saints Noms de Jésus et de Marie* on Mont-Royal boulevard in Outremont district and the Grey Nuns mother house on Guy Street in Ville-Marie district. Others have been demolished like the St-Julien Hospital in St-Ferdinand. This kilometer-long building was for a long time operated by the "*Soeurs de la charité de Québec*". The demolition started in August 2012 and the cost was around 7 million dollars. Moreover the fate of many other complexes are right now hanging in the balance, while the communities are evaluating various options in light of their incapacity to keep up with increasing maintenance costs, usually in a context of decreasing revenues.

Those complexes that have been sold have frequently been recycled to a new use that may or may not be compatible with their patrimonial, cultural or architectural identity; that may or may not take full advantage of their potential; and that may or may not – but usually not – take into account the lessons that the way of life of their previous owners and occupants had to teach. When this is the case, the symbolic values and the contribution and integration to the social and urban fabric of its surrounding community and environment are mostly lost. The case of the Marianopolis project in Montreal is a telling example of such a problem. The historic way of life, functions and mixed-use disappeared from the complex. The condominium transformation, as they frequently do, took away the public character of these public places. Institutional conversions, such as an educational use for Concordia of the Grey Nuns complex is desirable as it maintains, to a degree, the historic character while providing new meaning and continuity.

The heritage value of these religious complexes is most frequently analyzed and debated from a historic, and sometimes architectural, point of view. But the reality is that these complexes and the communities that were inhabiting them have shaped our history and impacted the development of our cities and villages through the social and communal interactions they have had with their surrounding environment and the very way their congregation were operating.

Today, thankfully, some of the congregations have decided to preserve the vocation of their complex by the complete preservation of the built and landscape heritage, perhaps understanding that the maintenance of the green spaces and gardens inside these complexes are as important as the building itself. The case of the Saint-Sulpice Seminary and its gardens is a good example of landscape heritage preservation: in 1981, the Canadian government designated the garden, located in the historical and natural district of Mont-Royal, as a national historic site. This initiative has helped to preserve the identity and character of the Mont-Royal Park.

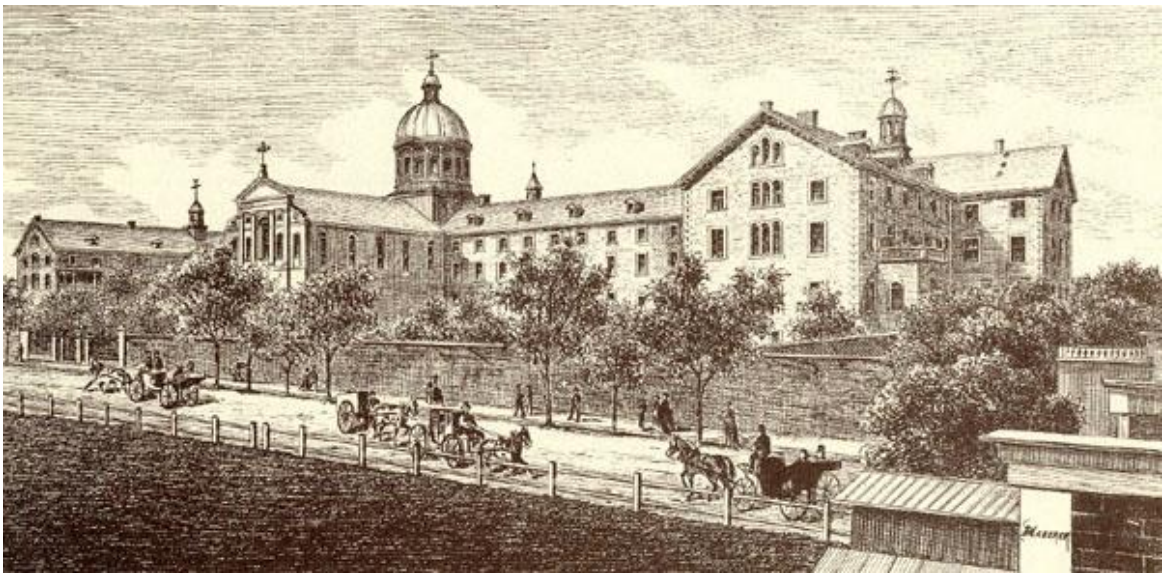
Besides being historically important, the preservation of these gardens contributes greatly to the greening of the city, since they act as physical and spiritual lungs for the city. In a heavily urbanized society such as Canada's, these gardens can help to tackle such current urban challenges as the lack of community gardens and overall cultivatable lands.

The cultivation of these gardens are in some cases still maintained by some members of these religious communities and/or non-profit organizations that continue to spread the values of the congregations and their involvement toward their community. Unfortunately, such initiatives are rare and personnel and revenue shortages on the part of the communities render the keeping and maintaining of these gardens a complex operation.

Question

The objective of this research is two-prong : first to identify the functional characteristics of gardens in religious complexes (built and operated mainly between 1861 and 1945) such as producing edible and medicinal plants and providing financial autonomy for the regular operations of the community and the hospital ; and second to analyze if and how these can be used as a base model for a new integrated urban agriculture real estate project today. The research will mainly be based on a case study, that of the Hôtel-Dieu (*Soeurs Hospitalières de St-Joseph*), notably through the analysis of its gardens (part of Montreal heritage), its community aspects and the services and activities the *Congréation des Hospitalières* was offering to the community.

Figure 2



Hôtel-Dieu of Montreal 1875 Source : Banq.qc.ca

Methodology

The research will be based on the examination and analysis of the architectural, landscape, social and economic characteristics and processes of the Hôtel-Dieu case study from a historical point of view focusing on the end of the 19th century, or more precisely from the establishment of the Hôtel-Dieu at its current location in 1861 to the end of the second world war in 1945.

The research will be divided in three main components: the problematic, which will include the contextualization and justification of the chosen topic; the analysis of the case study; and finally a prospective reasoning for the contemporary applicability of the case study analysis' conclusions and its potential benefits for a new urban agriculture real estate project.

Research tools

The main research tools will consist of written documentation including institutional records, other archival material such as photographs and drawings, as well as a semi-structured interview and the available online information concerning contemporary projects . The primary sources used will mainly come from institutional, governmental, academic and scientific sources.

Written documentation

The annals of the community of the "*Hospitalières de St-Joseph*" will be one of the major written references concerning the practices and lifestyle of the community at that time. These documents also contain all the details of the floristic and vegetable crops inventoriesfor the garden. This information will help understanding the form and function of the garden and also the relation between the community and the surrounding landscape. Other historical literature, including the account book of

revenues and expenses and the **"***Coutumier et Règles Communes des Religieuses Hospitalières de Saint-Joseph*" will be used to complete these informations.

Graphic illustrations

Old fire insurance plans, aerial maps, photos, paintings, drawings and architectural plans of the Hôtel-Dieu will also be used, if available, in order to detail the social, economic and functional significance of the buildings' architecture and placement. Aerial maps will also be used as a means to gain a better comprehension of the urban context evolution and the landscape transformation at that time.

Interview

In order to put the documentation in perspective, a semi-structured interview will be conducted with the designated archivist of the Nun's community of the *Hospitalières de St-Joseph*, Sister Nicole Buissière. The interview will be conducted in a semi-structured form in order to get, if possible, specific informations without excluding free-form discussions.

Limits

Based on a historical approach, this research attempts to highlight past events and facts. Such information depends on the availability, accessibility and quality of documents.

In the case of this particular study, there is a high probability that many graphic illustrations will have been lost. It is also conceivable that the historical maps, even if available, will not contain the needed information or will have been drawn in response to a different purpose than the illustration of the informations needed for this study. Finally, even if they are indeed available and contain the necessary data, they might not

be standardized and might thus render an analysis of the evolution of the site hard to accomplish.

Furthermore, the historical records are neither scientific, legal or notarized documents and are based on the very specific purpose of their writer. This creates the risk that the information be closer to a narrative than an inventory.

Moreover, when it comes to landscape, the level of complexity increases, as it is a cultural concept that is difficult to cover from a historical point of view. Most historical plans furthermore ignore landscape, making it difficult to grasp the gardens' relative scale and the eventual changes in its structure.

Figure 3

Stairs of the Hôtel-Dieu's Museum Source: missionpatrimoinereligieux.com

Research outline

This historical analysis of the Hôtel-Dieu aims to confirm that some functional characteristics of the garden, as well as some services and the community aspect the *Congréation des Hospitalières* was offering to the community may indeed be used directly in the eventuality of its redevelopment, participating in the elaboration of new meaning and function for the site.

The introduction includes the problematic, the methodology of the research and the context of the case study. The first chapter is based on the analysis of the design, form, structure and functions of the inner courtyard, with a specific attention to the garden. The second chapter covers the food axis of the complex and its relation to the city. The third chapter examines various options for the eventual recycling of the Hôtel-Dieu based on the lessons learned from its historical characteristics and food system while building on contemporary examples of integrated real estate urban agriculture projects.

Context

Founding of the Hôtel-Dieu

In 1730 when the brothers Gabriel et Benoit Basset son of Bénigne Basset notary and surveyor who drew the first streets of Montreal –who owned a vast tracts of agricultural lands on the island of Montreal – died, they bequeathed their lands to the Hospitalières de St-Joseph who were at this time the administrators of the Hôtel-Dieu. At the end of the 19th century Montreal was the economic capital of Canada and Ville Marie had gone through a rapid development, and was starting to feel a little crowded to some including, evidently, the Hospitalières. The congregation thus decided to move out of the city center to the Mont Saint Famille on the east side of the Mont-Royal, where Avenue des Pins is located today.

The Hôtel-Dieu is the history of health and medicine in Montreal. The primary mission of the congregation of the Hospitalières de St-Joseph was to care for the sick. For many years, the nuns have offered free health care services to the local population.

The location

In the 19th century, Montreal's city center was like many other major western industrial hubs, heavily polluted. Urban planning was at a crossroads, and planners and architects were slowly beginning to understand the necessity of creating green spaces *inside* the heart of cities: hygienism was starting to get traction as a new driving force. Frederick Law Olmstead, the famous landscape architect who designed the Mont-Royal park in 1874, was adamant in the importance of applying this concept:

"[Il] *soutenait que les environnements naturels intégrés aux ensemble industriels congestionnés favorisaient la santé physique et mentale"* (Borasi et Zardini, 2012).

This explains in large part why the Hôtel-Dieu and many religious, educational and health institutions were located around the Mount Royal. These institutions were looking for calmness, pure air and nature - but also, obviously, for a certain monumentality and visibility.

The land surrounding the Mont-Royal was occupied by agricultural space with little brooks flowing from the mountain. These fertile lands were mainly intended for horticulture, vegetable gardening or used as pasture for dairy cows (Ville de Montréal, 2013).

Figure 4

Map of Montreal 1870 Source: Banq.qc.ca

The building

The original frontage of the "new" Hôtel-Dieu, built in 1861, was 530 feet, with two lateral wings of 92 feet and a rear wing of 200 feet. The chapel was, and still is, located in the center of the frontage. Since that time, the Hôtel-Dieu has steadily grown (Lahaise, 1973).

Most of the religious convents like the Hôtel-Dieu had a very distinctive architectural style that is shared and immediately recognized, but with a strong individuality in form and function from the outside. The Hôtel-Dieu that came before the modern movement was following the same idea because of its religious vocation. " *It also differ from the progressist tradition in urban planning where buildings become containers of human activities- or machines serving humans"* (Caniggia, 2001). This was also due to the fact that the Hôtel-Dieu was not only a convent but a hospital as well. The hospital pavilion plan of the era was based on "*an international standard* [created] *in the late nineteenth and early twentieth century"* (Adams, 2008). This standard explains the "E" shape of the Hôtel-Dieu complex :

"[...] *pavilion-plan hospitals were intended to function as "a great machine" for healing, in which fresh air had a crucial function*" (Adams, 2008).

The intention and experience of the architectural plan of Victor Bourgeau was well programmed in order to respond to the religious and medical needs of the community.

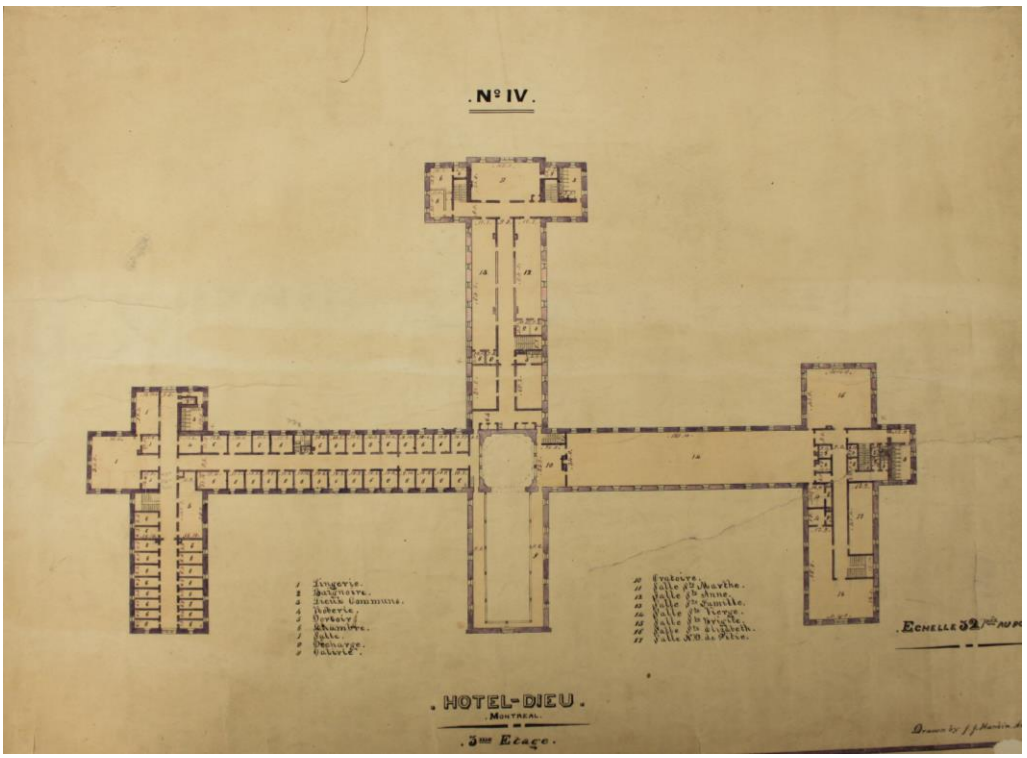
The complex of the new Hôtel-Dieu included a hospital, a chapel, the Mother House of the nuns, an orphanage, and a large orchard gardens protected by a stone wall. The E

design of the Hôtel-Dieu was allowing a better appropriation of the garden spaces by the inhabitants:

“The plan adopted by Victor Bourgeau for the construction of the Hôtel-Dieu respects the classical tradition. The architect has a symmetrical plan that develops around a central chapel. Different wings of the complex meet at right angles, thus relieving outdoor spaces and protected courtyards “ (Ville de Montréal, 2013).

However, the functionality of this building cluster and the lifestyle that this religious community was maintaining inside the complex were in some ways well integrated to the surrounding neighborhood, which helped compensate the repelling aspect of the physical enclosure the Hôtel-Dieu maintained.

Figure 5

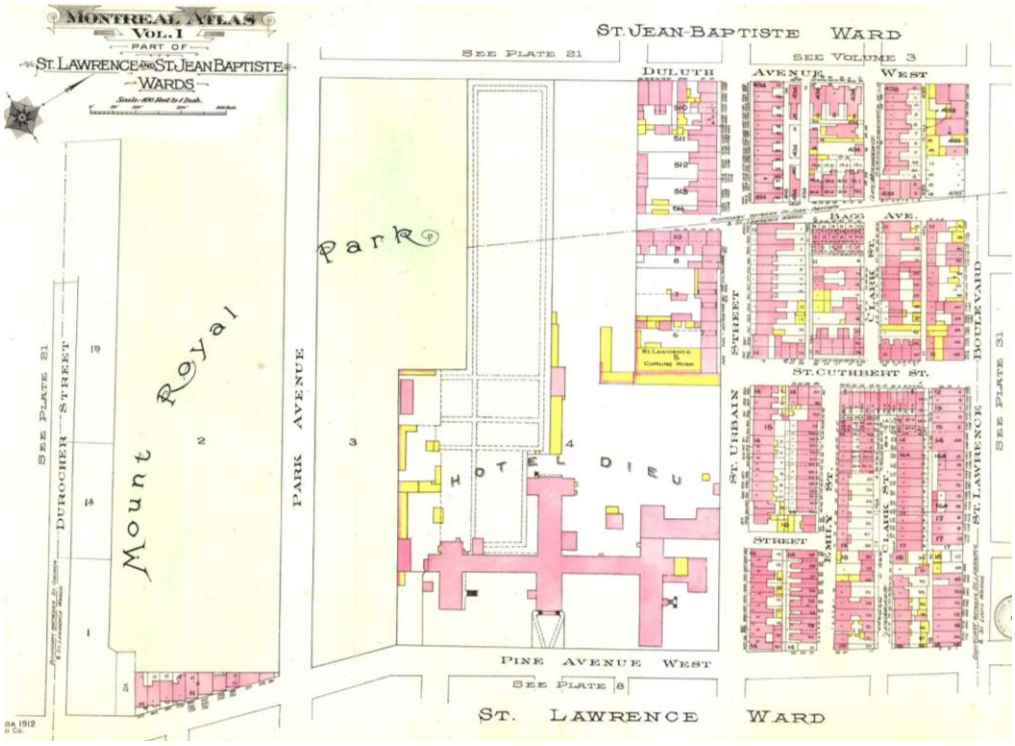


Victor Bourgeau Hôtel-Dieu’s Plan Source : RHSJ

Urbanism

The nuns have played an important role in shaping and planning the city. They rented and sold parcels of their lands to new residents. Starting from around 1890, the structural impact and the significant development boost the arrival of the Hôtel-Dieu generated in the surrounding area can be observed on the historical maps. This important densification around the hospital had a positive impact on the neighborhood.

Figure 6



Firer insurance 1912 Source: Banq.qc.ca

The congregation contributed a lot in the development programming and the urban functions taken care of by the site for the benefit of its immediate surroundings. The nuns were playing the role of urban designer defining the form, the size and location of the parcels. Interestingly, the deeds of sale of lots on each side of the Sainte-Famille street specified that the owners had to agree to build a stone house on two floors, in addition to the basement – perhaps in order to make sure potential buyers would actually develop their lot, and build it with architectural forms that would adequately complement that of the Hôtel-Dieu.

Soon after, a broadening of the Montreal centrality was to be observed. The Hôtel-Dieu had created a new urban pole in the city, which later on became the Plateau Mont-Royal.

Figure 7

Arial map 1960 Source : Carthotèque UQUAM

Chapter 1: design, form, structure and functions

The Hôtel-Dieu : more than the sum of its parts

As a cloister and a hospital the new Hotel-Dieu on Mont Sainte-Famille had to be designed in a way that would respond to the needs of the community and the patients of the hospital. The cloister garden thus had to be intimate and protected by the outer walls of the monastery, which it did. Well framed by its tree frontages, it formed the heart of the site and clearly staged the buildings of the complex.

Moreover, it was important for the *Hospitalières of St-Joseph* to offer patients a place where they could take a breath of fresh air and admire the surrounding landscape, in the spirit of the hygienist movement in architecture and planning. Form and function were seen as indivisible. The design of open spaces and architecture of buildings, as well as the interface between the two, served the purpose of being harmonious and thus conducive to rest and healing for the sick.

The E shape of the building designed by Victor Bourgeau was actually intended to disconnect the site from its surrounding environment, in order to provide a sense of security and intimacy to the nuns and even more so to the treated sick. Such a design was commonplace at the time for religious (and particularly monastery) complexes, as the vast inward-looking courtyards were often used to facilitate the appropriation of the garden spaces by its various users and create a sense of security.

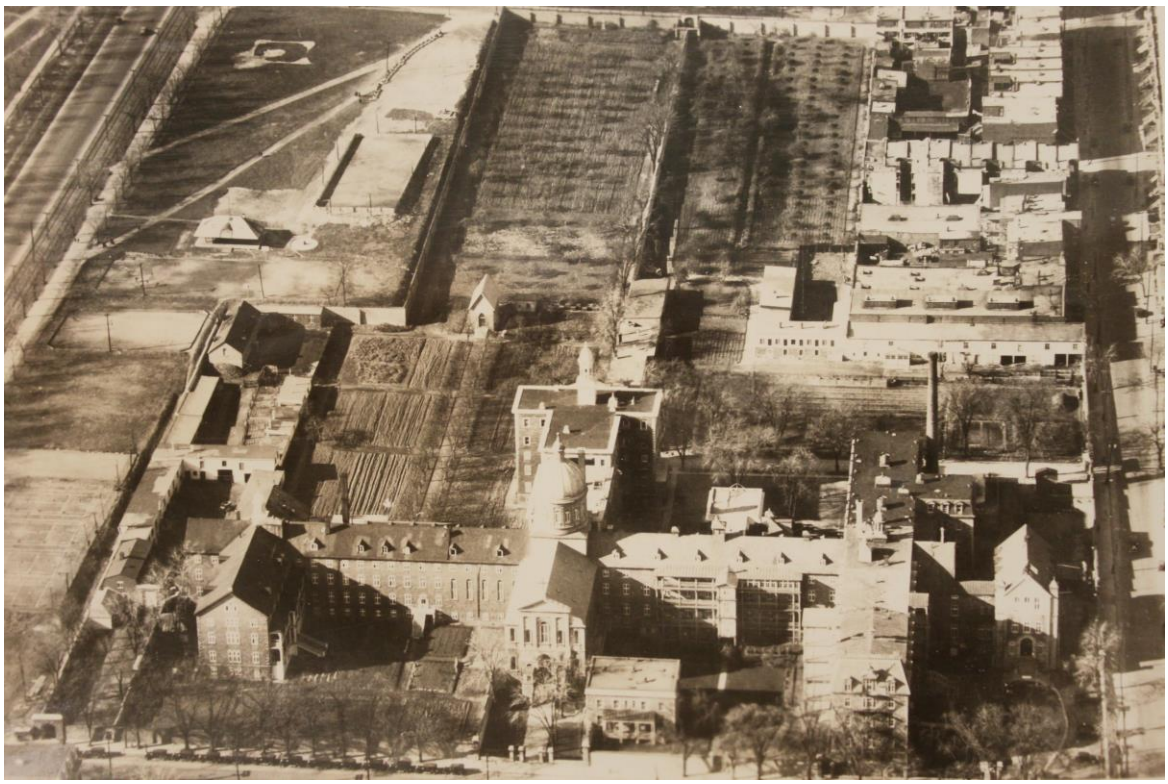
The configuration nonetheless allowed different points of view of the garden from inside and outside the complex. These points of views helped the residents, particularly the patients, maintain a connection with the natural world : this concept is that of the

“passive use”. The term "passive use" describes the observation of the landscape from inside and refers to all users taking advantage of the exterior environment with minimal physical effort (Stoneham and Thoday, 1996). That is to say that the surrounding landscape is constantly subjected to perception and personal identification by the onlookers. Therefore, in a monastic complex such as the Hôtel-Dieu, the gardens had to be built according to the most important views from the inside, while considering various caracteristics from the surrounding environment that were visible from the inside and able to influence the atmosphere of the garden. Through the careful planning of points of view, these elements either had to be kept, or excluded. In the case of the Hôtel-Dieu, the use of landscape from inside shows a passive appreciation throughout the year.

In some cases and depending on the season, this calming and “healing” function remained the primary use for the elderly and the sick. That was the case for some members of the religious community and the hospital.

Spatial connections between the exterior and the interior were equally important components in the planification of the Hôtel-Dieu. The relationship between the buildings and the site made the complex working coherently as a whole.

Figure 8



Hôtel-Dieu 1926 Source : RHSJ

The gardens

Form of the gardens

The inner courtyard of the Hôtel-Dieu was surrounded by a gray stone wall which created a clear definition of the rectangular shape of the site.
Spaces were rigorously articulated and almost connected by an orthogonal system of axes and points of view. The proportions of the space were geometrically positioned in a symmetrical manner.

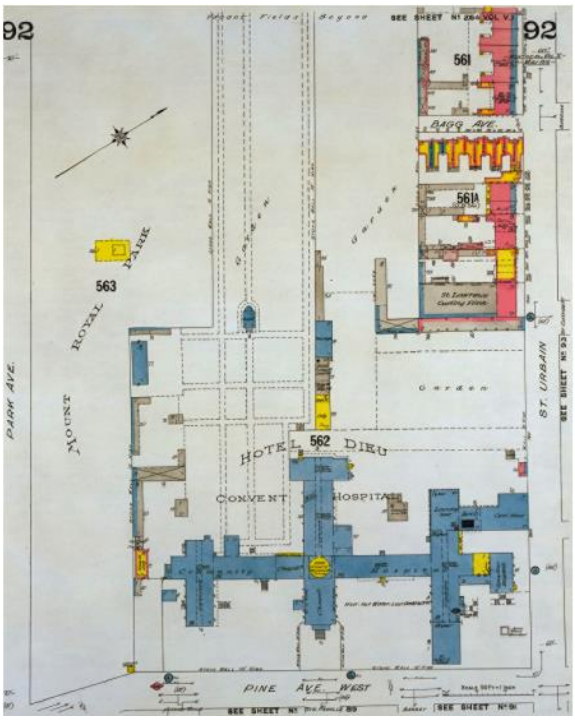
This style of gardens was very much focused while having total control of forms. The composition was pure in terms of relationship between the lines and surfaces, and the visual aspect was clear and defined; principles according to which the Hôtel-Dieu's garden were designed:

" Les allées seront larges et spacieuses, toujours sablés s'il se peut, et entretenues fort propres ; les bordures, les arbrisseaux bien taillés dans la saison " (RHSJ M, 1939).

The inner courtyard was separated in two. One part was reserved for the monastery and the other for the hospital. Even if the nuns were in charge of the whole complex, it was important for them, as they were cloistered, to get a configuration allowing for as much privacy as possible. The annals of the *Hospitalières of St-Joseph* indicate that the monastery part contained two major gardens : the garden of the " *Ste-Vierge* " and the garden of " St-Joseph ". Though not indicated on the plans, their approximate delimitations can be determined through the analysis of the annals.

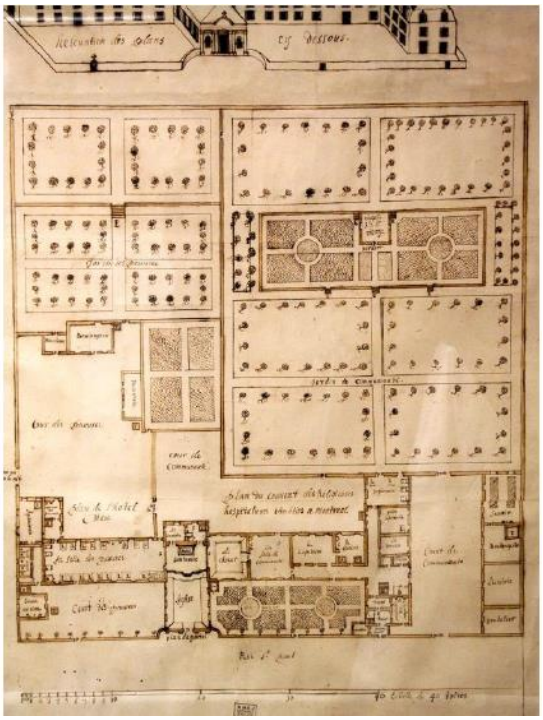
" Monseigneur conseilla la division des deux jardins et celle du verger ménageant des allées spacieuses et en assez grand nombre pour faciliter d'agréable promenades au personnel du monastère " (RHSJ M, Paquette, 1860-1881).

Figure 9



Fire insurance plan 1915 Source : Banq.qc.ca

Figure 10



The garden 19thcentury Source: ipir.ulaval.ca

Style of the gardens

Based on the old gardens plans, the Hôtel-Dieu's garden was inspired by the French classic style and respected the traditional religious beliefs. Through its forms, it developed a structure that responded to production, power and spiritual intensity, giving the overall complex a sense of place.

This garden style was developed in accordance with the rules of well-defined proportions, where the geometric shapes dominate the natural elements. Heavily influenced by the architectural trends of Renaissance, the classic gardens such as the Hôtel-Dieu's were considered integral to the building(s), and one was not te be planned without the other. Therefore, garden designers were mostly architects, and they infused

their views of what they considered good architecture into the gardens they designed. This explains in part why outdoor and indoor spaces, which were part of a whole, showed so many similarities, with a courtyard geometry including “vestibules” and “rooms”.

Architectural lines of the Renaissance inspired the Hôtel-Dieu’s garden in an effort to combine the useful (edible plants) with the desire to create an attractive place. This stable and structured environment around the monastery, enabled the residents to experience a clear sense of place, a feeling of being somewhere, as much when they were outside in the gardens as inside in the buildings or in their room – though in a different way.

Planting approach

Typically, religious complexes’ gardens often consisted of several distinct parts: the vegetable garden (*hortus*), the medicinal garden (*herbularius*) related to the infirmary, the garden of herbaceous plants, the kitchen garden, the orchard (frequently associated with the cemetery) and, finally, the flower garden which is cultivated for ornamental plants in order to embellish places of celebration of the liturgy (Tyson, 1998, Landsberg 1995; Barbeau, 2007).

Extract of the “ *Coutumier et Règles Communes des Religieuses Hospitalières de Saint-Joseph* ” :

“ Le Jardin sera divisé en plusieurs carrés tous plantés et ensemencés de racines, d’herbes potagères, de salade et autres légumes nécessaires à la maison, le tout en espèce et quantité suffisantes. Les fleurs pour l’autel seront en quelque lieu séparé “ (RHSJ M, 1939).

The garden was divided in such a way that it was easily accessible and functional for the community. Because they require more maintenance, vegetable and herb gardens were located close to the monastery. The same logic applied to the cowshed, the stable, the henhouse and the barns.

The vegetable gardens were divided into several plots with wide alleys to allow for better circulation, from which can be deduced that some of the species which needed lots of sun were planted away from the building and tall-tree framed principal alleys.

On the other hand, as shown on various site plans, a large portion of fruit trees, mostly apple trees, were located at the very end of the site because of the minimal maintenance they needed.

The garden's managers had to carefully choose plants in order to generate an interest and make it an attractive place throughout the year. To achieve this, they had to consider several design factors such as the shapes, textures and colors of the plants themselves, as well as their interaction with their environment. For example the choice of evergreen in some part of the garden was essential in order to provides a bit of color during winter.

The choice of species also had a major influence on the form of the garden. The types of trees, for example, were not the result of trivial choices.

" Un nombre assez considérable de jeunes érables, plaines, sapins, ormes furent plantés le long des principales allées et autour du mur d'enclos " (RHSJ M. Paquette, 1860-1881).

The american elm was used extensively in large open spaces because of its majestic port and large dimensions, as it can reach 25 meters high and 20 meters wide at maturity (Pellerin, 2005). These trees, planted in long lines, gave verticality to the site while

canceling in part the symmetrical appearance of the garden. The vegetation cover created by trees provided greater privacy for the community.

Functions of the gardens

The design of the garden had three complementary functions : the first one was purely ornemental, which as we have discussed also benefited the well-being of all and was part of the healing process for the treated patients ; the second one was to act as a public square for the Hôtel-Dieu, a place where social interactions were encouraged and everybody could meet, talk and be part of the community that was the complex ; and the third one was of course to produce food and medicinal plants.

" Nos jardins nous offrent dans la chaude saison des avantages inappréciables; ils sont encore le lieu de nos pèlerinages, de nos processions et de nos promenades; c'est surtout durant nos retraites que nous goûtons les charmes de la solitude qu'ils nous procurent… " (RHSJ M, Paquette, 1860-1881).

This combination of multiple functions was not new, as it dated back to the Middle Ages where inner courtyards had medicinal, therapeutic and meditative or contemplative roles where for various reasons food-producing functions could not be excluded (notably the importance of maintaining a certain autonomy in cases of crisis, food-shortage or war). This need for financial – and even more so, food-producing – autonomy was also present in the case of the Hôtel-Dieu. This strategy was part historic, as it had been the way things had been done for a long time, and part justifiable by the local context, as the hospital services were expensive to maintain and the somewhat remote location of the complex (at the time of building) militated in favor of a direct access to food and local grown medicinal plants at all times. It is for this reason that the available space of the inner courtyard was reserved largely as a vegetable garden and orchard, with dedicated

parts for medicinal plants.

The monastic and healing gardens

The nuns' daily schedule was divided between prayer and work. The garden layout therefore had to limit distractions for the nuns. At the same time, the cloistered nuns' mother house obviously needed to be facing towards the inner courtyard. Seen everyday by the nuns, literally constituting their whole world, the inner courtyard was much more than a garden and a place of rest and healing : it indeed carried and exemplified the core values and was an identity landmark, a natural and spiritual space where the spatial organization and the selection of plants were imbued with religious and philosophical meaning.

Moreover, as the complex included a hospital, the importance of having a garden for the *Hospitalières of St-Joseph* was not only for its monastic virtues, but also for the more practical reason of its important healthcare benefits.

" The belief that plants and gardens are beneficial for patients in healthcare environments is more than one thousand years old, and appears prominently in Asian and Western cultures (Ulrich and Parsons, 1992). During the Middle Ages in Europe, for example, monasteries created elaborate gardens to bring pleasant, soothing distraction to the ill (Gierlach-Spriggs et al., 1998). European and American hospitals in the 1800s commonly contained gardens and plants as prominent features (Nightingale, 1860) " (Ulrich, 2002).

Figure 11

Nuns at the garden 1930 Source: ipir.ulaval.ca

The utilitarian gardens

Food and medicinal (but also ornemental) plants production was the primary function of the garden. Through this economic activity, the community was able to provide its own financial autonomy. The inner courtyard had to be designed in a very efficient way in order to make this garden as productive as possible.

In 1862 when the " *Sœur Dépositaire* " began to plan the inner courtyard, Mgr. Bourget proposed a variety of plantations to prioritize, both in fruit and ornamental trees.

As this list of fruit trees planted in the gardens shows, a considerable variety of species could be found in either section.

Garden of the Ste-Vi	
Type of production	**Number of plants**
Apple trees	212
Plum trees	38
Pear trees	2
Walnut trees	322
Cranberry bush Viburnum	55
Currants	316
Gooseberries	61
Nannyberry Viburnum	2

Source : RHSJ, 1886 to 1944

Garden of St-Joseph	
Type of production	**Number of plants**
Apple trees	5
Plum trees	10
Cherry trees	7
Riverbank Grape	14
French vine	25
Currants	100
Gooseberries	25
Wild red cherry	3

Source : RHSJ, 1886 to 1944

The number of fruits trees planted at that time, combined to the various vegetable and medicinal herbs gardens and the livestock, were monopolizing an important part of the inner courtyard. But this large food production was necessary to provide for what was an relatively big community at the time. In 1864, the complex was housing 68 nuns, an orphanage and 210 hospital beds (Gagnon, 2002). Every autumn, important quantities of fruits and vegetables were being stored in order to fulfill the needs of the hospital and the convent during the long winter season (RHSJ M, 1978).

The account books, which detail the revenues and expenses of the community, show that most years, only basic supplies such as ropes and some textiles had to be purchased, and almost never any food was bought from outside. The gardens were thus able to provide for the vast majority of the needs of the community and the hospital in vegetables and fruits; dairy and meat products were also produced directly on site. Cereal food came from adjacent agricultural fields exploited by a tenant farmer of the Hôtel-Dieu (RHSJ M, 1978).

The account books allow, throughout the history of the Hôtel-Dieu, to partially surmise the kind of cultivated crops and livestock husbandry that was being done at that time.

Vegetables : Corn, eggplants, cucumbers, tomatoes, peppers, squash, rhubarb, onions, carrots, lettuce, beans, beets, potatoes, cabbage, celery, cauliflower, radishes, leeks, spinach and watercress.

Fruits : Raspberries, strawberries, blueberries, blackberries, currants, chestnuts, apples, pears, melons, cherries and blue grapes.

Wine consumption was a tradition brought by the French nuns. For a long time, wine was the main cold beverage (outside of water) used by the community, both at the table and for the sick. The wine-making actually increased drastically in 1880, when the community decided to order 500 plants of " Bisconfield " grape vine in order to meet the needs of the growing number of nuns and patients in the complex.

" Ce fut au printemps que nos deux sœurs dépositaires tentèrent l'essai de la culture d'un nouveau plant de vigne (Bisconfield) afin de pouvoir faire elles mêmes la provision de vin pour la maison. Elles achetèrent donc 500 plants de vigne que le vendeur planta lui-même dans notre jardin. " (RHSJ M, Paquette, 1860-1881).

Medicinal herbs and domestic : Anise, lemon grass, laurel, alexandrian senna and parsley, etc.

Some of the medicinal recipes consisted of ingredients that were not part of the herbs garden but could be found elsewhere on site. These ingredients included rose flowers, cherry resin, cherry bark and spruce gum among others, and they were used in the formulation of oils, ointments, tablets and powder (RHSJ M, 1978).

Livestock : Chickens, guinea fowl, turkeys, sheep, cows, pigs and horses.

As the accounting books show, the utilitarian gardens were providing the community with a great variety, as well as great quantities, of food and medicinal products.

Figure 12

The hen house 1930-1940 Source : RHSJ

Figure 13

The barn 1930-1940 Source : RHSJ

A useful and inspiring garden

The form and structure of the inner courtyard of the Hôtel-Dieu has been carefully planned and thought of in order to meet the various needs of both nuns and patients. The need for intimacy, the proximity to nature and the access to fresh air and sun, the production of food and medicinal herbs, the sense of place and the facilitation of social interactions, all of these objectives have been remarkably well met by the configuration and landscaping of the inner courtyard of the Hôtel-Dieu. This is no small feat, considering that some of these needs and functions are not so easily compatible. It is then a tribute to the quality of the layout of the inner courtyard that the nuns were able to get great productivity from it through the vegetable and medicinal herbs gardens while having it retain the aesthetic, spiritual and psychological benefits it was able to provide for everyone. The inner courtyard of the Hôtel-Dieu provided nourishment for the mind, the soul and the body.

Chapter 2 : food axis

Spatial program

The spatial program of the Hôtel-Dieu was very much influenced by the urban context around it due to its self-sufficiency needs. It was important for the architect to create almost the same functional characteristic that can be found in the city as a whole. The Hôtel-Dieu was a cloister, a hospital, welcomed the elderly until 1874 and had an orphanage until 1890. The Bourgeau plan of the Hôtel-Dieu already shows a precisely defined spatial program well before construction in order to maintain a certain control and to make things work inside the complex.

Food axis and spatial program

A look at the account books, showing the various revenues and expenses of the community, demonstrates that food production was not a side activity for the community, but clearly a vital one, completely integrated to all the others.

The depositary nun managed these books by registering all the information concerning food production.

"Elle doit enregistrer au rang des grosses provisions, les produits du jardin. Elle les écrira dans son livre de compte au même prix qu'elle les aura mis dans la recette; mais, si l'économe en vend quelque chose, elle mettra le prix à la recette comme les autres derniers qu'on aura mis entre ses mains" (RHSJ M, 1939).

In these books can be found the type of fruits and vegetables that were sold with the quantity and sometimes, the generated income. Even though some of the excerpts are incomplete, a quick look at some of the data compiled in them through the years gives an idea of the importance of food production for the community, and the revenues that it was able to generate through them to finance the other activites (mainly the hospital).

Production revenues, December 1888		
Type of production	**Quantities**	**Generated revenue ($)**
Grapes	1898 pounds	56
Apples	80 quarts	160
Onions	6 bushels	3
Beans	4 ½ bushels	4
Potatoes	15 bags	7
Beets	10 tons	20
Cabbages	1000 units	20
Other vegetables	-	60
Total revenues for the month		**330**

Source : RHSJ, 1886 to 1944

Total production, July 1920	
Type of production	**Quantities**
Currants	100 baskets
Gooseberries	20 baskets
Strawberries	150 baskets
Tomatoes	12 boxes
Rhubarb	290 dozen packets
Cabbages	25 dozen
Beans	60 baskets
Cucumbers	614 dozen
Lettuce	820 dozen
Onions	370 dozen packets
Carrots	116 dozen packets
Radish	675 dozen

Source : RHSJ, 1886 to 1944. Data on generated revenues not available.

These excerpts only show the quantity of each item that was sold for that particular month, which means that to these numbers must be added all of the production that was directly consumed at the complex.

The majority of outdoor and indoor spaces of the Hôtel-Dieu were programmed to create a large system of food production. Storage, preservation, food preparation and service spaces required specific kinds of rooms and buildings. From the garden to the service spaces, these elements made for an efficient and tightly controlled food production and processing chain on site. The organization of the various food spaces of the Hôtel-Dieu reveals important informations about the functioning of the community

at that time and how it shaped and transformed the architecture of the complex. More specifically, it indicates the presence of a “food axis” in the monastery.

Elizabeth Collins Cromley, a Professor of Architectural History at Northeastern University in Massachusetts, published a study on what she called the “food axis of american houses”. She studied the use and interaction of these spaces, and how these elements have helped shape the multiple forms of residential architecture, then and now.

“ The term "food axis" implies not only the existence of multiple spaces that accommodate food, its processing, preparation, and consumption, but also the relationships among these spaces. Fields, gardens, outbuildings, cellar storage rooms, pantries, butteries, kitchens, and dining rooms are all part of this constellation. ” The food axis is "a group of elements with related interests" the concept does provide an underlying framework for understanding food-related spaces and how strongly they shape house form and site planning ” (Davis, 2012).

Even though this study addresses a much smaller scale than that of a monastery, the two contexts do share a similar organization, as well as many food related spaces. The food axis and its components dominate the landscape and the architecture inside the Hôtel-Dieu.

Food calendar: production, consumption, storage and vending

Type of garden products sold during different months of the year

Garden produces sold over a 5 month period for a typical year	
Month	**Types of garden produces sold**
July	Currants, gooseberries, strawberries, raspberries, rhubarb, cabbages, beans, beets, leeks, celery, cucumbers, lettuce, onions, carrots, radish, cauliflowers
August	Currants, gooseberries, rhubarb, cabbages, beans, beets, leeks, celery, cucumbers, lettuce, cressons, parsley, onions, carrots, radish, cauliflowers, tomatoes
September	Apples, pears, blueberries, melons, tomatoes, cabbage, cauliflowers, corn, potatoes, onions, carrots, beets
October	Apples, rhubarb, radish, parsley cauliflowers, white beans, beets, potatoes, carrots, tomatoes, corn
December	Grapes, apples, onions, beans, potatoes, beets, cabbages

Source : RHSJ, 1886 to 1944. Data for November and other months not available.

As the table shows, the consumption of garden produces was based, as could have been expected, on the relative availability of the various types of vegetables and fruits throughout the year. As could also be expected, the table shows that the variety of available products in July and August was larger than during the other months of the year. On the other hand, some types of products such as apples, tomatoes, potatoes and corn were only available in early autumn.

In addition, root vegetables were usually kept and consumed during the winter season because of their capacity to tolerate longer conservation periods. While other garden products must be consumed rapidly or transformed equally quickly to ensure preservation, root vegetables could be kept for long periods, as long as they were in the dry, dark and cold environment the root cellar was built to be able to provide.

Revenue generated per month by the garden produce in 1886.

Monthly garden revenues, year 1886	
Month	**Revenues ($)**
July	10
August	14
September	47
October	49
November	35
December	468
Total revenues, 6 months period	**623**

Source : RHSJ, 1886 to 1944. Data for other months of 1886 not available.

The rise in garden produces sales, which starts in September and culminates in December, can be explained by two factors. The first one is the availability, at the end of the summer and beginning of autumn, of great quantities of different agricultural products (notably the apples which represented a big portion of the sales of the Hôtel-Dieu), availability which obviously translates in important sales. The second one, pertaining to the major revenues of December, can be assumed to be the important storage capacity of the complex, which allowed it to keep huge reserves of certain types of produces (notably root vegetables such as potatoes, carrots, beets and onions, as well as apples) and sell them back to the surrounding residents, whom did not have such storage capacities, when they needed it most, which is at the beginning of the long winter season. The space available for storage at the Hotel-Dieu was sufficient to preserve fruits and vegetables for its resident's consumption but also to sell throughout the year in order to generates revenue for the complex.

The Hôtel-Dieu was thus performing a role that was very similar to the general stores, which also had important storage capacities. In combination with canning and transformation in compote and purees, storage capacity was, at a time where imported produces were nonexistent or extremely rare, one of the most efficient ways of ensuring a steady supply of fruits and vegetables during the winter season.

Role and responsibility in the food axis

To make this food production system work each nun had a specific role to play. In the "*Coutumier et Règles Communes des Religieuse Hospitalière de Saint-Joseph"* of 1872 we can find the rules of living and the hierarchical organization of the community.

The gardener sister

One of the most important position in the monastery's organization, the gardener sister's job was to take care of everything concerning the cultivation of the garden in the enclosure of the monastery.

" Le jardin doit être bien émaillé de fleurs pour contribuer à l'ornement des Saints Autels et rempli de toutes sortes de bons fruits. La jardinière demandera à la Dépsositaire, les engrais, les graines et les plants de vigne et autres arbres fruitiers qui lui seront nécessaire. Elle recevra par les ordres de la Dépositaire tout ce qui lui sera nécessaire pour l'entretien du jardin. Elle marquera les plantes dont elle veut avoir les graines, cueillera les fruits pour les donner à la Dépensière et à la Dépositaire, si elle en fait vendre, ce dont elle rendra compte à la Supérieur à la fin de l'année." (RHSJ, 1872)

The sister in charge of the barnyard

The main task of the sister in charge of the barnyard consisted of making sure that the farm animals were well fed, watered and cleaned, that they were in good health and that they received basic medical care when needed.

She also had to make sure the fresh milk was quickly brought to the storage once it had been collected, that eggs were removed on time from the nests and given to the storage or to the custodian nun, depending on the intented use (hatching, consuming or selling).

The custodian sister

The custodian nun was paramount in the management of each religious community. She was in charge of keeping the financial records of the community which included the revenues and expenses but also the contracts the Hôtel-Dieu awarded for repairs, enlargement projects or the overall maintenance needs of the monastery that could not be accomplished by the nuns themselves. A very important position in the congregation, her decisions were always carefully weighted and taken according to the well being of the community as a whole.

" Elle remettra à la Dépensière, les légumes, le beurre, le saindoux et autres chose, s'il est jugé nécessaire ; quand aux autres provisions elle les lui donnera aux jours fixés, selon le besoin [...]. *Elle sera chargée de procurer à la pharmacienne des pauvres tous les remèdes, liqueurs et en quantité suffisante. Elle ne donnera aux hospitalières que du vin et de la bière pour les besoins des malades. "* (RHSJ, 1872)

The custodian sister had to record the provisions and the garden products by writing them down in the account book for which she had the sole responsability of keeping up to date.

"La sœur dépensière"

Under the order of the custodian sister and in charge of the storage, the spendthrift sister's main responsability was to make an educated forecast concerning the food requirements for the monastery's inhabitants for the year. This included the nuns for which predictions weren't complex, but also the hospital's patients and, when those facilities were active, the children of the orphanage and the elderly of the senior's residence, all of which could see relatively important demographic variations throughout a given year. The forecast not only concerned the quantities of food, but also the relative proportions of the various produces, meat, dairy products and medicinal herbs that would be required. An accurate forecast was particularly important for the hospital patients and the elderly, since a major part of the healing process was dependent on an sound an healthy diet, as well as a direct access to the required medicinal plants.

The spendthrift sister also was in charge of the supervision of the sisters working in the kitchen, both for the preparation of the various liquors, jams and jellies that facilitated a winter access to fruits and the preparation of the daily meals – the content of which the spendthrift sister was dictating from the evolution of the available provisions.

The sisters in charge of the kitchen

These sisters had the responsability to prepare all the meals for the community, the orphanage and the patients of the hospital 3 times a day.

The baker sister

The baker sister, as the name of her title implies, was to supervise the sisters who were assisting her in preparing pastries and bread for the community.

Food trajectories in the complex

The food trajectory depended on the type of product and the possibilities of conservation it was offering in the context of the food preservation practices and technologies available at the time. For example the root vegetables, such as carrots, beets, potatoes and onions were for the major part put directly in the cellar, ready to be retreived for processing and consuming at any time during the winter season when necessary.

On the other hand the currants, gooseberries, strawberries and raspberries were harvested and then transformed in the kitchen to make jellies and jams. Once completed, they were put in storage for later use.

Medicinal herbs were going directly to the pharmacy in order to be immediately processed for medication production when they were at their freshest state. They could then be served to the hospital's patients either right after processing, or later on during the winter season.

These examples of food trajectories illustrate that the community's food axis was dependent on many different types of garden produces and, accordingly, a variety of processing and storage spaces accommodating the needs of all of these. These elements were essential to make this food production system effective.

Storage

The winter being long and vigorous in Quebec, the root cellar was crucial in preserving fruits and vegetables. After the establishment of the community on Mont Sainte-Famille, several years later, the garden crops started to be more significant, resulting in the need for more storage.

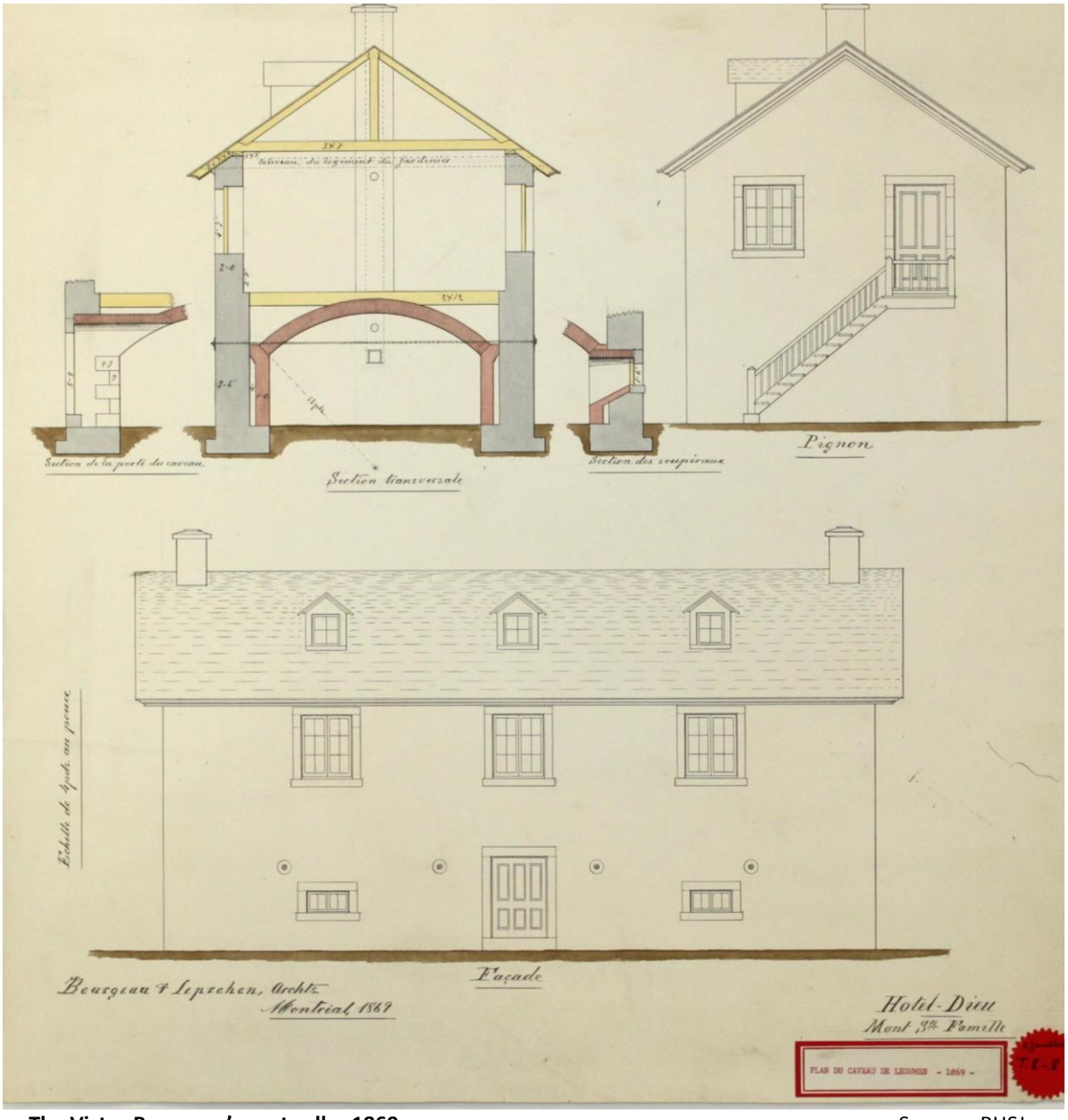
"Nous eûmes en à faire terminer divers département du monastère et de l'hôpital, à faire bâtir une partie des dépences de notre établissement dont la plus considerable fut notre caveau pour les provisions de légumes et de fruits" (ARHSJ M, Paquette, 1860-1881).

Victor Bourgeau was once again approached to design the root cellar for the Hôtel-Dieu. The cellar was used mainly for storing vegetables from fall to spring but the second floor was also used as residence for the gardener for several years. Provisions contained in the cellar included potatoes, cabbage, carrots, beets and leeks, while barrels of apples and various preserves could also be found. Each type of vegetable was kept separately in a particular way. Potatoes were kept in wooden crates, carrots were buried in the sand or wood chips. Cabbage was suspended and the apples were individually wrapped and placed in barrels.

The location of the cellar was an important aspect to consider. Situated next to the garden and close to the monastery, it was easily accessible for the community on a daily basis. The Hôtel-Dieu cellar was a rectangular structure of grey stone with a roof made out of wood shingles and two chimneys at each end. It had two wooden doors ; one located in the center of the main facade on the first floor and the other one on the side of the building at the second floor. This second door was giving access to the gardener's residence.

The root cellar was one of the most important storage building on the site of the Hôtel-Dieu. It was a very efficient way of preserving food from the garden during the non-growing season without having to process it. Other smaller storage for fruits and vegetables could be also found near the main kitchen and secondary ones inside the complex.

Figure 14



The Victor Bourgeau's root cellar 1869 Source : RHSJ

Food transformation

As could be expected, the kitchen was the place where food was transformed. Designated as the main kitchen of the complex, the monastery kitchen was located on the first floor near the storage room and the wood chamber. It was a large room with a 12 feet high ceiling where designated members of the community were preparing meals on daily basis, and in complete silence.

Outside of the main kitchen, the complex contained secondary kitchens that could be found in the hospital and orphanage sections, on the ground floor. These kitchens where used for preparing food on daily basis, as opposed to the canning and other long-term food processing that was being done exclusively in the main kitchen.

Another important place where food was transformed was the bakery, which was located on the ground floor of the monastery and provided pastries and bread for the entire complex.

The pharmacy was a place where medicinal herbs cultivated in the main garden were transformed by the apothecary who then proceeded to formulate various medicines used by the visiting doctors on the patients housed in the complex. The pharmacy was located on the first floor on the hospital side near the doctors room and the consultation room.

Figure 15

The pharmacy 1944 Source : RHSJ

The expansion of the hospital, the opening of the nurse school, the introduction of diets as a preventative or curative treatment in 1900 – both in pre or post-operation phases of treatment - and the installation of electric power in the complex in 1904, helped transform the food processing chain of activities inside the monastery. In 1917 the capacity of the hospital was 350 beds, with 2100 meals served (patients, employees and visitors combined) every day (RHSJ, 1937).

A new kitchen was built in 1933 order to accommodate the new technologies and the growing number of meals that had to be prepared each day. The other smalls kitchens in the hospital disappeared and were replaced by a bigger central kitchen, allowing for more efficiency through a reduction in food manipulation and a better overall quality control (Lahaise [dir.], 1973).

"*Dans cette cuisine unique, sont préparés les repas du personnel de l'hôpital, le plateau de chaque malade et même les diètes calculées. Cette organisation supprime le local séparé affecté aux régimes spéciaux, et la préparation immédiate des repas, dans les cuisines de secours des départements. L'expérience nous a montré que le système actuel est d'une économie notable. Il réduit au minimum la manipulation de la nourriture et concentre le travail, sans compter qu'il facilite la surveillance gégérale et assure un meilleur service diététique"* (RHSJ, 1937).

With the rapid advancement of technologies, mainly due to the installation of electricity, the food processing system and the location and configuration of food processing spaces would need to be modified once again after 1940.

Figure 16

The kitchen 1930 Source : RHSJ

Food services spaces

According to Bourgeau's plan, there is no specific room for the hospital's employees, such as a cafeteria. At that time, the Hôtel-Dieu didn't really need employees apart from the doctors, because the nuns, which were working on site for the most part, were providing the vast majority of the required labor. This explains why was no employee refectory can be found on the hospital plans. The patients' meals and medications were served directly in bed, be it in a semi-public or private room. At the beginning of the 20th century, with the expansion of the hospital, a cafeteria for the employees, students and visitors appeared but the patients were still served in their room.

The architectural plans indicate two major food service spaces inside the complex. One refectory was located on the ground floor on the orphanage side and the other was on the first floor of the monastery where the nuns were having their meals in silence, as was the custom.

"*Jusque dans les années 1940, chaque religieuse disposait de son propre couvert de table et de sa tasse. Chaque couvert était déposé dans un casier attenant au réfectoire dans de grandes armoires. À l'heure des repas, les sœurs arrivent dans le réfectoire deux par deux. Elles vont chercher leur couvert et le tiennent avec les mains liées.* […] *Elles s'assoient ensuite et ouvrent le couvert enroulé dans une petite nappe nouée d'un galon*[…] *L'assiette de service et l'assiette à dessert se trouvent déjà sur la table"* (Bouchard, 2009).

The nun's refectory didn't change through years mainly because the religious custom and the fact that no technological innovation was needed nor found its place inside this space. Only the human activities, habit and behaviour could transform the space.

Figure 17

The refectory 1909 Source : RHSJ

The complex' food axis as a living (and healthy) organism

Food has had a significant impact on the Hôtel-Dieu landscape. A useful and ecological food system that played an important social and economic role in the community. Planted, cultivated, processed, transported, stored, sold, prepared, served before consumption, the relation between food and architecture inside the Hôtel-Dieu was significant. This food axis could thus be compared to a living organism inside of which each element and space acted as a functional organ.

This food network organization was an effective way of maintaining the communal aspect inside the complex. Rigid but efficient, this task grid for the nuns reflected the functionalism of the highly structured food landscape complex as a whole.

"The idea of the food axis and its functional relationships is strongly suggestive of an ecological approach. Food is grown, processed, consumed, and eventually returned to the soil" (Davis, 2012).

This ecological approach (before its time) was giving the complex a holistic vision the community was strongly believing in and which included a concern for the environment, a strict control of the quality of the products and a healthy life through good nutrition.

The *Hopitalières de Saint-Joseph* have long history of dietetics. As was written :

"Jeanne Mance fut diététicienne avant d'être infirmière" (RHSJ, 1937).

For the community, the importance of food wasn't just a vital element of survival but also an element of healing :

"Le régime alimentaire s'est élevé au rang d'un facteur thérapeutique de premier plan, à la même enseigne que l'hygiène, la chiurgie et les médicament" (RHSJ, 1937).

In 1937 a manual of dietetics was written by the *Religieuses Hospitalières de Saint-Joseph de l'Hôtel-Dieu de Montréal* shows the importance of nutrition for the community. From the garden to the service spaces, this food system was contributing to the health and well-being of everyone living on the site.

Chapter 3 : contemporary application

This study has investigated the functional characteristics of the Hôtel-Dieu's gardens and its food system. Various options can be put forward for the eventual recycling of the Hôtel-Dieu, such as for a new integrated urban agriculture real estate project, that are based on the lessons learned from the historical characteristics and food system of the religious community.

Urban agriculture in Montreal

In the 1970s, the first community garden was inaugurated in Montreal via an initiative from a group of citizens of european origin. Located in the *Centre-Sud* neighborhood, the initiative transformed a wasteland in a popular community gardening place.

In the following six years, 40 community gardens were inaugurated in Montreal, helping to improve food access and security for all, particularly in lower and lower-middle class neighborhoods. Since then, community gardens have been an integral component of the city of Montreal and, to a certain extent, its identity.

Today, the city contains 95 community gardens covering 26 acres, as well as 70 collective gardens which are supported either by the city itself or through paramunicipal organizations and the eco-neighborhoods initiative. As such, Montreal compares favorably with other cities in North America :

"*Loin d'être absente de nos habitudes de vie,* [l'agriculture urbaine] *est bien implantée dans nos milieux et dans nos activités. Il apparaît ainsi que Montréal se compare avantageusement à cet égard aux autres grandes villes nord-américaines"* (Ville de Montréal, 2012).

In this regard, Montreal seems to have everything it takes to become a model for urban agriculture. But there are implementation and, more importantly, maintenance issues that have to be dealt with :

"La Ville arrive à peine à entretenir ses parcs ; en conséquence, des effectifs supplémentaires et des investissements seront nécessaires. Sans oublier un changement de mentalité, un plan d'action solide et des objectifs quantifiables" (Gobeil, 2012).

In addition, there is no specific initiative that aims to facilitate or encourage the implementation of urban agriculture projects in real estate (notably residential) developments in the city. Considering the strong mobilization of citizens who invest and practice urban agriculture, there seems to be an interesting opportunity to meet this demand with limited investments from the city by capturing the relatively strong growth of the real estate industry through by-law prescriptions.

Figure 18

Montreal community garden Source: agriculturemontreal.com

Conservation of cultural heritage

The conservation of cultural heritage sites and buildings has changed in the last several years, as the focus of the conservation efforts has somewhat switched from the buildings only to extend to the larger urban landscape they are frequently part of – the concept of "cultural landscape" has incidentally made its way in the new provincial *Loi sur le patrimoine culturel* adopted in 2011. In 2005, the Ministry of Culture passed a law on the conservation and protection of the historic and natural borough of Mont-Royal that integrated such notions (Ville de Montréal, 2013).

As part of this historic and natural borough of Mont-Royal, the preservation and conservation of the Hôtel-Dieu should not only include the buildings but also the entire complex: the compound walls, the gardens, the existing trees and plants and the landscape.

The Hôtel-Dieu is a uniquesocial, historical and physical asset to the historic and contemporary identity of Montreal and should therefore be looked at closely to allow for the implementation, when the time is right, of an imaginative urban agriculture preservation, conservation and adaptive re-use of the whole site.

The recycling of the Hotel-Dieu is integral to the preservation of Mount-Royal's heritage and the keeping of the gardens would contribute to maintaining the historic, cultural and indeed ecological value of the protected neighborhood. Done right, this recycling would also contribute positively to the achievement of several objectives of the City, such as soil permeability, urban biodiversity and heat island effect control.

Figure 19

View of the Mont Royal from the Hôtel-Dieu's garden 2013 Source: Marie-Pierre McDonald

The Hôtel-Dieu and its agricultural practice

The religious communities' need for autonomy and food security were such that they were required to incorporate agriculture in their daily activities. As such, many of them defined their own sustainable food production, distribution and consumption strategies and systems while respecting their religious practices and beliefs. This explains in part why they became such experts in the fields of agriculture and agronomy.

Sheltered from a rapidly urbanizing environment, the Hôtel-Dieu of Montreal is one of these communities that have been able to maintain their economic independence and keep a relatively stable food supply for themselves, their services and the surrounding community through the years, thanks mainly to their extensive gardens. They also have managed a healthcare autonomy by cultivating medicinal plants. This agricultural practice in urban environment is what we now call "urban agriculture", and it is not new : religious communities, among other organizations, had already been practicing it for a long time.

The Hôtel-Dieu's large garden played an important role in the preservation of the environment but their harvest also supported and connected the community and the building complex that it occupied with the city. This model also has largely inspired the agricultural urbanism phenomenon, which is about connecting people living in the city through their local food system with the local surrounding producers. Even though the Hôtel-Dieu's gardens weren't themselves accessible to the public at large, they had an important structural impact on the ecological and the social connectivity aspects in the city since what the gardens were producing was indeed available to all of its residents who were welcomed to buy it.

Preserving the Hôtel-Dieu

Even in the 19th century, the Hôtel-Dieu achieved the goal of encouraging healthy eating through their integrated food system; a system that was efficient and respectful of both the environment and the people. Obviously, gardening at the end of the 19th century didn't have the same meaning as it has today in developed countries. If it was then an element of survival, it is now an alternative, explored to better the access to quality and locally grown food or simply to create meaning in what may be perceived as an alienating world in which one of the most basic needs, eating, is fulfilled by standardized, streamlined and, more importantly, remote food producing and processing systems.

Preserving the Hôtel-Dieu's agricultural vocation, as a tribute to the past but also as an efficient and pleasant way of removing the distance between nature, agriculture and urban residents, is thus both a necessity and an opportunity. Reconnecting people with a local and relatable food system could also help promote a healthier and a more sustainable lifestyle.

The site of the Hôtel-Dieu is already well configured to implement a modern urban agriculture project. As discussed in previous chapters, the architectural quality, the configuration and siting of the buildings allow a natural appropriation of the garden by the residents (and the general public), and as a truly comfortable place to be, is very conducive to their using it to its full potential – including agriculture.

The renaissance garden style could be reused in the case of a community garden project. Its well-defined proportions would help maintain a certain order and structure in the gardens and at the same time would create an attractive place with high aesthetical value for the users.

The type of produces the *Hospitalières de St-Joseph* used to grow each year should be reintegrated in an urban agriculture project. Choosing to eat locally and according to the seasons avoids long-distance food shipping as well as the chemical treatments this process usually implies, among other benefits.

The reuse of the root cellar would allow to preserve root vegetables throughout the year. This would limit the need for energy-intensive refrigerated storage and, again, the use of conservation chemical products on vegetables.

On the other hand, recreating the same production revenue structure wouldn't be possible due to the reduction of garden space through the selling of various parcels in the last century, and the cost of labor. That is not to say that it would not be able to provide significant savings for the people who would operate the garden.

In addition, the "general store" roles the religious community of the Hôtel-Dieu was playing, such as providing important storage capacity for fruits and vegetables and selling products during the winter season, could (re)implemented today in the form of a public market, as it used to be one of the ways by which the Hôtel-Dieu community was able to connect with the inhabitants of the city. The market would be a great opportunity to recreate this connection.

The role and the responsibility of the nuns who had to make the food production work would be an interesting example to use in a case of a cooperative housing project, without, of course, the strict hierarchical aspect of the cloister.

The gardens could be managed by all tenants, who would then jointly assume responsability for the various gardening tasks such as planting, watering if need, harvesting, preserving and perhaps even transforming. This would enable the community to save money, to have access to fresh, healthy produce, and to benefit from

a social and educational environment.

Finally, the Hôtel-Dieu's food system can also act if kept relatively intact as a teaching tool and a pilot project for new real estate developments that wish to integrate an urban agriculture dimension from the start.

The Hôtel-Dieu's food system was very efficient. Outdoors and indoors spaces used for food production, storage, preservation and preparation were well programmed to create a large centralized system of food production.

Figure 20

The root cellar 2013 Source: Marie-Pierre McDonald

Evidently, the complex changed through time due to the declining activity of the community of nuns, but also in response to the growth and the demand of the urban population of Montreal. The Hôtel-Dieu had, among other things, to enlarge its buildings:

"Au tournant du XXe siècle, de nouveaux traitements font leur apparition. De plus, les demandes d'hospitalisation en chambre privée deviennent de plus en plus nombreuses de la part des citoyens prêts à payer pour ce confort supplémentaire. On fait alors construire, en 1902, une annexe de quatre étages s'avançant un peu plus vers l'avenue des Pins, permettant de loger 60 patients de plus en chambres privées et semi-privées. On procède aussi à l'agrandissement des bureaux d'admission et de comptabilité, de même que des archives, et à l'organisation d'un bureau médical, d'une bibliothèque médicale et d'un salon de réception."(Patrimoine religieux, 2009)

Some of the outdoor and indoor spaces that were part of the integrated food system have changed or simply been abandoned over time. The barn, for example, was demolished after 1932 and the hospital's garden suffered the same fate around 1960, due to the need for the construction of new buildings and (regrettably) parking lots, all of which dramatically reduced the surface area of the gardens (and created runoff and erosion problems that were discovered later).

Through time, the mix of activities of the complex changed somewhat. The nuns residence and the hospital are still the main activities, but the complex now includes a museum and a bed and breakfast for the family members of patients of the hospital.

On the convent side, the garden is well preserved but doesn't have the exact function as it had before. The orchard still exists at about the same size it had in the beginning of the last century but the vegetable garden is now much smaller, having taken more of a leisure and aesthetic function than the subsistance one it once had.

Today, the garden maintains its ornamental function, boasting many mature trees. This demonstrates that the site has been well preserved and it is also of a high ecological value.

Even though the site has been transformed and hasn't maintained the role it was assuming before, it still is adapted to the creation a modern system of food production inside the complex.

Hôtel-Dieu's proposals

Urban design intervention

With the Hôtel-Dieu's cloister function gone, a better integration of the building complex to the urban fabric of the city, in order to maximize connectivity from inside and outside, appears as one of the most important urban design modification for the site. The opening of the stone wall surrounding the site in certain places would definitively improve its connection to the city.

Also, the expansion of the street frame into the site would help to keep a street grid that is (mostly) in line with that of the rest of the city, further improving connectivity and openness for the site. The Hôtel-Dieu would thus give itself the possibility to be as well integrated as possible with its surrounding built environment, while its internal design is

already thought of in order to allow a good accessibility and be pedestrian friendly through maximum permeability.

Even though it would remain a semi-private environment, the garden would also play the role of a public space. Part of an interesting urban pole, the Plateau Mont-Royal, it could become a perfect model of a public space due to its functional and user-friendly space, social interactions, density and a mix of use within a walkable radius.

Social organization

Today, the garden of the Hôtel-Dieu is not used to its full potential of food production due to the aging of the community and high maintenance cost : on an aproximative area of 233,060 square feet, 75% of the surface is used for ornemantal function and only 25% for food production. On the other hand, maintaining vegetable gardens like the Hôtel-Dieu's nuns community used to have requires much more maintenance than an ornemantal garden, especially if the main goal is to make it as productive as possible. Such dedication can probably not be expected (nor would it be required) by the residents or tenants of an eventual mixed-use development.

The Hôtel-Dieu could allow social organizations to use the gardens, as they already do for a small portion of the superficy for the benefit of *Santropol Roulant*, a meals-on-wheels service organization, who is using it for beekeeping. This could help address the increasing food security problems among the elderly in Montreal.

"*The service consists in delivering freshly-prepared meals to the homes of individuals living with a loss of autonomy. These individuals, who are for the most part seniors, require a bit of support with the challenging task of purchasing ingredients and preparing healthy and nutritious meals"* (Santropol Roulant, n.d.)

Such a strategy would participate in reconnecting neighboring residents in a way very similar to the way the community was able to do it through their local food system into the city.

As such, the use of the Hôtel-Dieu's garden by other community organizations such as *Santropol Roulant* or urban farmers, food entrepreneurs or restaurants wishing to create a particular brand identity could be interesting options to develop.

Residential project

In the case the Hôtel-Dieu was to be converted in a residential project, the garden space should be protected and transformed into community or collective gardens for the tenants, and perhaps, if the demand isn't high enough, also for the interested neighboring residents.

As mentioned before, the site is perfectly structured for food production and transformation. Storage, tools, kitchen as well as service and preparation spaces are already part of the food landscape of the Hôtel-Dieu. The urban agriculture planning strategies for this residential project would be very easy to establish.

Many good examples abroad could be helpful and inspiring in a case the Hôtel-Dieu is converted into a residential project.

In Hammarby Sjöstad for example, is a recently built district located in an old industrial and harbor area in Stockholm, Sweden. Hammarby is a large-scale building project, occupying more than 200 hectares of land in proximity to the city center, and now providing 10 000 residential units for 25 000 inhabitants. The project includes an economic mix of 60% owner-occupied and 40% social housing.

The project stands out, among other reasons, thanks to its outstanding landscaping quality: the offer of open public spaces includes parks, courtyard gardens, playgrounds and significant waterfront access improvements and facilities.

Figure 21

Hammarby Sjostad residential garden Source: Vivre en Ville 2013

The building blocks mainly follow a semi-open form that provides free access to the semi-private inner courtyards, as could be the case for the Hôtel-Dieu, meaning that anyone may access them in the manner of a public space while they still retain their private co-ownership and management attributes.

In many cases, co-owners of an inner courtyard have collectively decided to convert it, wholly or partly, into community gardens in order to get the benefits of growing food close to their homes. Each participating resident has thus access to an individual plot for

gardening, either in the ground or in containers. Users usually share storage rooms, outside cooking facilities as well as interior or exterior gathering places (which are available to all).

Figure 22

Hammarby Sjostad residential garden Source: Vivre en Ville 2013

This initiative helped build and reinforce relationships and solidarity between the tenants and, though a purely private one, also contributes to the greening of the city. The success of such an example demonstrates the ease of implementation of private (or civic) urban agriculture initiatives into a residential project such as the one that could be implemented on the Hôtel-Dieu's site.

Mixed use and Intergenerational project

Originally, the Hôtel-Dieu complex included the nun's residence, the hospital, a chapel, an orphanage and a senior residence. Already in the 19th century the community understood that this mix and proximity of services and activities inside the complex were both viable and efficient.

Today, the Hôtel-Dieu is already maintaining a certain mixity through the hospital, the nun's residence, the bed and breakfast and the museum. This level of diversity should minimally be preserved, but a new real estate project could easily go far beyond that by including office spaces, a restaurant, a kindergarten, senior residences, or even very light industrial uses (with no nuisances for the other tenants) or an art gallery.

With the recent trend (from a historic point of view) of age segregation with regards to housing preferences, the importance of providing interactions between different generations is now reemerging. (Generations United, 2008).

On this particular issue, the Serviam Gardens project in the New-York Bronx is a telling example of a mixed-use intergenerational residential project. This eight-story building is composed of 240 affordable senior units included in an otherwise mixed-use project. It is built on a 9 acres site in Mount Saint Ursula's campus and the project also includes adaptive reuse and restoration of an existing convent on the property. The convent portion was empty for many years as the remaining nuns were living on their own while still running the school. In 2003, the religious community finally decided to sell a portion of their estate, including the building that would eventually become the Serviam Gardens : a scenario that could closely fit the Hôtel-Dieu's near future.

Serviam Gardens now includes communal spaces for recreation, on-site social services, a library, and a child-care facility. It has a roof garden which grows edible plants and an intergenerational garden between the complex and the high school on the adjacent campus. In total, 36 agricultural plots are available to tenants wishing to grow their own vegetables (Gregor, 2012).

This project goes one step further than the Hammarby for the particular aspect of the integration of urban agriculture, since the latter was integral in the realization of the project right from the planning phases. By making it the defining characteristic of the project and one of its main marketing points, the developer demonstrated its understanding of the importance, but also the potential, of urban agriculture in a residential or mixed-use project.

Figure 23

Serviam Gardens Source: rklastudio.com

The Hôtel-Dieu could also be a mixed-use, affordable housing and senior residential project with community or collective gardens accessible for people of all age. This socio-economic mix of activities would promote the garden space and would make it more lively. Furthermore, as a semi private space, the garden could also be very attractive place for the public to visit

Conclusion

This study shows that there is a significant potential in redeveloping religious buildings or building complexes such as the Hôtel-Dieu, the preservation of which is important not only on the basis of the patrimonial or architectural arguments, but also for the potential the complex demonstrates for its integration to the urban environment of the Mont-Royal protected neighborhood. Though the future of the Hotel-Dieu cannot be predicted, its cultural, social and environmental heritage should definitively be protected; not only in form, but also in function, since this study has made the case for the indivisibility of the pair.

Beyond some necessary architectural adjustments and an emphasis on better connectivity and accessibility, building complexes like the Hôtel-Dieu represent a very interesting option for community living in an aesthetically pleasing and socially integrated system.

The nuns of the Hôtel-Dieu were very involved in their own community and their neighborhood. The way of life of the *Hospitalières de St-Joseph* did demonstrate that through their intimate connection to the community, they were indeed able to generate strong economic activity, powerful social ties and a great appropriation by the residents of their environment.

Moreover, the agricultural vocation of the Hôtel-Dieu should be an inspiration for any modern urban agriculture project. Their food system production can definitively be re established in our modern world on the site itself or on any other residential project.

It should be imperative that urban agriculture be implemented or taken into account by urban planners, landscape architects or architects in the process of any residential

planning project in order to achieve a healthier urban environment by encouraging social participation, improving public health and economic development.

Feeding people in cities by developing urban agriculture is probably one of the best tools for sustainable urban development, particularly in a context of a rapidly growing urban population, and the opportunity the Hôtel-Dieu represents for such an endeavor should not be passed.

Figure 24

Hôtel-Dieu's garden 2013 Source: Marie-Pierre McDonald

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