THE SEGREGATED CITY : RESIDENTIAL DIFFERENTIATION, RENT AND INCOME IN MONTREAL, 1861 - 1901.

by

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ABSTRACT

This thesis is an examination of the development of residential differentiation in Montreal between 1861 and 1901. Montreal exhibited class and occupational segregation from an early date. Another concern of the thesis is to explore the distinctive elements of the city's rent structure. It is demonstrated that household rents accurately reflect the city's occupational and class divisions as well as the income of the working class. The investigation of residential differentiation and rent structure was undertaken within the framework of what I have termed the industrial capitalist pedestrian city (the industrial city). Three features characterize the industrial city: the development of new social relations of production; the massive growth of urban population and territory; and the restrictions on the journey-to-work.

RESUME

Cette thèse étudie la nature de la différenciation résidentielle à Montréal entre 1861 et 1901. On retrouve très tôt à Montréal de la ségrégation résidentielle selon les classes sociales et selon la nature des emplois des particuliers. Cette recherche explore également les composantes significatives de la structure des prix des loyers dans la ville. Il est démontré que les prix des loyers reflètent de façon significative les divisions sociales et selon la nature des emplois, de même que le revenue des ménages. La recherche sur la différenciation résidentielle et la structure de prix de loyers se situe dans le cadre de ce que j'ai appelé la ville industrielle capitaliste piétonnière (la ville industrielle). Trois éléments caractérisent la ville industrielle: de nouvelles relations de production; la croissance massive de la population et du territoire; et la contrainte des ouvriers à la marche à pied.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

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PREFACE

The Concerns and Structure of the Thesis

The primary objective of this thesis is to outline the emergence of class-based residential patterns in Montreal in the second half of the nineteenth century. It also examines the essential features of Montreal's rent structure in this period. It is argued that the development of residential differentiation and rental districts in Montreal in this period was a result of the growth of new forms of economic organization and rapid territorial expansion. Like many other cities in North America and Britain, Montreal underwent rapid industrial and urban growth. From a city at mid-century centered on commercial activity and petty commodity production, Montreal grew by the end of the century to be the largest industrial city in Canada. In this period Montreal's population increased almost fivefold from 57,175 in 1851 to 267,730 in 1901 while its area expanded tremendously. It is within the context of this dramatic growth that residential and rent structures are viewed in this thesis.

In the second half of the nineteenth century Montreal can be characterized as an industrial capitalist pedestrian city. It differed in many important ways from the commercial city which preceded it and the corporate city which followed it. New economic structures generated a new form of the city, of

which the driving force was the rapid acceleration of industrial capitalism. Major features of the development of industrial capitalism were the reorganization of the labour process, the separation of home and work, and the increasing specialization of urban land use. The existence of an inadequate transportation system during the rapid expansion of the city severely restricted the intra-city mobility of the working class. This, coupled with the formation of industrial districts, established the framework in which residential choices were made. For the great mass of the working class the location and rent of their housing was strongly influenced by the structural features of the urban economy.

This thesis consists of four chapters. The first chapter lays the foundations for the ideas to be explored in the following chapters. It is an attempt to redefine the nature of the nineteenth-century city. In particular, it will discuss the concepts relevant to an understanding of the relationship between industrial growth and residential patterns in the second half of the nineteenth century. It will be argued that the industrial capitalist pedestrian city is more than a transitional type bridging the commercial and corporate cities. Rather it is a form of city with its own distinctive features.

The second chapter is an examination of the growth of industrial structures in Montreal in the nineteenth century.

It will be shown that the diversification and differentiation of industry were responsible for the formation of industrial districts. It will explore such questions as how were they related to centrality? what was the role of the canal and the railroads? The location of these industrial districts generated the spatial organization of occupational and class residential patterns. The analysis relies upon the Canadian industrial censuses and the city business directory.

The third chapter is an exploration of occupational and class residential differentiation in Montreal in 1861 and 1901. The emphasis is on the emergence of class-based residential patterns by 1861 and their persistence throughout the rest of the century. In particular, the chapter will address such questions as how segregated was the bourgeoisie from the working class? were the working-class living in one large undifferentiated district? It will be demonstrated that the interacting class and occupational patterns mirror social structure. The primary data sources are the City of Montreal water tax rolls for 1861, 1881 and 1901.

The final chapter is an examination of Montreal's rent structure between 1861 and 1901. It examines such questions as what was the range of rents paid? how completely were people segregated by rents? The class-based residential patterns described in Chapter Three are intimately linked to rent structure. Analysis shows that household rents, as

obtained from the water-tax rolls, are good indicators of income and living standard of segments of the Montreal working class in this period. Besides the water tax rolls the major sources for this chapter are the wage records of two sets of industrial and government employees.

Methodological Considerations

The major primary source used in completing this thesis is the City of Montreal water tax rolls. They provide four essential pieces of information: the name of every head of household in the city; the occupation of every head of household; an appraisal of the annual rent; and the address. The rolls were established by the City of Montreal enumerators in order to tax each household for the supply of water.[1] The enumerators went from household to household every summer beginning in 1847. In this study the concern will be with the entire set of households enumerated in 1861, 1881 and 1901. The address and occupation of household heads provide the central component of the residential pattern analysis in Chapter Three, while rents were added to the address and occupation for the investigation of rent structure in Chapter Four. Like similar sources for the nineteenth century (for example, city directories) the water tax rolls are plagued by a number of problems such as the underenumeration of working-class households, the lack of thoroughness of the enumerators,

and the lack of information concerning the large number of females working outside the home. Despite these difficulties the water tax rolls provide a valuable source for the questions under review in this thesis.[2]

The main thrust of this study is a class analysis of residential and rent structures in Montreal in the second half of the nineteenth century. The difficulties of constructing classes from nineteenth-century occupational data are discussed in Chapters One and Three. Suffice it to say here that forty-four common occupations were chosen to represent Montreal's social structure, both in terms of occupation and of class. They provide an excellent cross-section of the city's occupational and class structures. In 1861 they accounted for sixty percent, in 1881 fifty-eight percent and in 1901 fifty-seven percent of the city's total households.

From these forty-four occupations a class sample was constructed for 1861 and 1901 composed of six social classes. Only twenty-five occupations, however, could be used in the class sample as the other nineteen were difficult to categorize in terms of social class. The difficulties were twofold. First, there was too much ambiguity in the occupational title of the nineteen that were rejected. For example, a carpenter could refer to an individual who was, on the one hand, a skilled craftsman making furniture or intricate house moulding or, on the other hand, an unskilled

labourer who drove nails into pieces of wood. Secondly, those occupations whose position in the social class hierarchy could not be determined because of a lack of information concerning them were also rejected. The twenty-five occupations chosen to represent the six social classes accounted for 44% and 45% of the city's total number of households in 1861 and 1901 respectively. For the theoretical conception of class see Chapter One, and for details of the manner in which the social classes were constructed see Chapter Three.

One of the major problems of conducting a geographical study of residential segregation is that of scale. Segregation can be studied at any number of scales, ranging from the city level down through wards, neighbourhoods, streets and even neighbours. Each level of scale is characterized by a specific degree of segregation. Ward, in his study of Leeds between 1841 and 1871, has attempted to overcome the restrictions of scale by analysing residential patterns at four different levels of spatial aggregation. They are, in descending order, neighbourhoods, census enumeration districts, environs (households and their six immediate neighbours), and neighbours (1980, 143-45). Harris has stated that a "choice of the relevant scale to describe segregation can only be made with reference to the patterns of social activity prevailing in the particular study location" (1984b, 192).

In this thesis two different levels of spatial aggregation are relevant for an analysis of residential patterns in nineteenth-century Montreal. The larger unit of analysis is the ward. Throughout the nineteenth century Montreal was divided into a number of administrative wards. I have made some minor modifications to these so that in 1861 there were nine wards, in 1881 thirteen and in 1901 fourteen. At a much finer scale, for 1861 and 1901, the wards have been subdivided up into 'districts'. In 1861 there were nineteen districts averaging 661 households each and in 1901 forty-two averaging 1248 households. The creation of these districts is an attempt to delineate neighbourhoods as much as that was possible given the ward boundaries. For maps of 1861 and 1901 see the Appendix.

Notes

1. The water tax rolls can be found in the City of Montreal Archives located at City Hall.

2. For a detailed examination of the water tax rolls see Hertzog (1984, 61-72).

CHAPTER ONE: THE INDUSTRIAL CAPITALIST PEDESTRIAN CITY: A LITERATURE REVIEW

Introduction

Geographers have explained the transformation of residential patterns in the nineteenth century in terms of a transition model in which a "preindustrial" pattern of the mercantile city gave way to a "modern" one. The debate over the precise moment when this transition occurred has led to claims by one set of writers (Cannadine, 1977) that it was at mid-century, and by another (Ward, 1975, 1976, 1980) that it was not until the end of the century. While being able to date the emergence of modern class-based residential patterns is important,[1] the debate has tended to emphasize timing at the expense of process.

Most cities in eastern North America and Britain which had reached a substantial size by 1850 underwent a radical change in their economic and residential structures in the next fifty years. They also underwent a major alteration in form. To define this transformation of the social geography of nineteenth-century cities as simply one of a transition is inadequate. Such a definition understates the importance of process and fails to specify the propelling forces of change. I shall argue that this period (1850-1900) was characterized

by a particular type of city, the industrial capitalist pedestrian city (for short, industrial city). The defining elements of the industrial city are: first, that it is centered on the development of capitalist forms of production in which industry provides the basic drive of accumulation; second, that urbanization and urban population growth are rapid; third, that the restricted modes of the journey-to-work played an important role in the structuring of urban space. Together these three elements determined the manner in which the nineteenth-century urban residential and economic structures developed. This re-definition of the city permits us to describe and explain the nature of residential patterns in the second half of the nineteenth century without getting bogged down in the debate about the timing of the disappearance of the mercantile city. The industrial city was not merely a transition between the compact mercantile city and the fragmented corporate city of the twentieth century, but a city with its own distinct form and structure.

The purpose of this chapter is to examine the literature on residential patterns and the development of capitalist relations of production in the nineteenth-century city. Because of the large amount of this literature I will refer only to those studies which relate to nineteenth-century North American and British cities. Precedence is given to Canadian cities, where work exists. Even then it will be necessary to

ignore a great number of studies.[2] Although there is a vast literature on residential and economic structures, little connection has been made between them. This chapter is more than a review of the literature: it will show that the development of economic structures generated a new form of the city, which reflects the new social relations of industrial capitalism.

The Industrial Capitalist Pedestrian City

The growth of the industrial city in the second half of the nineteenth century was based upon the transformation from petty commodity production to capitalist production. Underlying this transformation was the reorganization of the labour process, the separation of home and work and the development of the functional separation of land uses. The growth of industrial capitalism gave rise to the centralization of production, the formation of industrial districts and the early beginnings of class segregation.

Although the mercantile and industrial city are for analytical reasons differentiated, it would be a mistake to consider them as functionally distinct. The seeds of change that would give rise to the industrial city were present in the mercantile city. The process of primitive accumulation taking place in the city and the country during the period of petty commodity production was the historical agent which

divorced the producer from the means of production and gave control to capitalists (Marx, 1977, Chaps. 26-32). The peasant and rural labourer were forced off the land and into the city, and the artisan was forced into the factory or the marginal sectors of the economy. Increasingly, the control of the means of production in the mercantile city was taken over by the rising class of capitalists. This new class, in order to compete, had to raise its use of capital in the production process, which led to the further division of labour, the extension and enlargement of the firm and the increasing specialization of land use.

The growth of capitalist social relations was embedded in the existence of two antagonistic classes: the bourgeoisie who owned the means of production and the working class who owned their labour power. The expropriation of surplus value from the working class by the bourgeoisie is a central component of the relationship between the two classes. Surplus value is realized through the sale of commodities in the market place. In the city, surplus value extraction is facilitated through the concentration and specialization of production and the reduction in time of the circulation of capital (Edel, 1981; Harvey, 1981; Scott, 1980b; Walker, 1978, 1981).

The spatial distribution of industry in the capitalist city is, in its broadest sense, a reflection of the polarization of labour and capital. A number of writers have

shown that in the mercantile city the production of commodities was undertaken by independent artisans who exchanged their products for other goods (Cumbler, 1979, 13-15; Gordon, 1978, 29-33; Hirsch, 1978, 4-10). The disintegration of petty commodity production and the declining importance of mercantile exchange, and the growth of industrial capitalist production based on the split between labour and capital, transformed the intraurban location of economic activity. Land-use patterns in the mercantile city were relatively undifferentiated (Walker, 1978, 175-76; Ward, 1971, 87-88). By the second half of the nineteenth century, however, the increasing differentiation of economic and social space resulted in the formation of specialized industrial districts around the city's central core (Gordon, 1978,43; Muller and Groves, 1979, 171-76; Walker, 1978, 185-89; Ward, 1971, 88-89; Warner, 1972, 104)

(i) Economic and Building Cycles

The development of capitalist social relations is not an even process: the reorganization of economic and spatial structures in the capitalist city is closely tied to the cyclical nature of accumulation. E. Mandel has identified five fifty year cycles or "long waves" since the eighteenth century. They take the "form of the successive expansion and

contraction of commodity production and hence of the production of surplus value" (Mandel, 1975, 108). Each cycle possesses a similar form of growth: with each new cycle there is an increase in the investment of capital, while in the downswing there is an underinvestment of capital. According to Mandel, the second half of the nineteenth century was a single long wave running from 1848 to 1893. The expansive phase ran from 1848 to 1872 and was characterized by the transition to machine-made machines, the expansion of the world market and a rising rate of profit. The contraction phase, from 1873 to 1893, was characterized by the generalization of machine-made machines, the relative stagnation of the world market and a falling rate of profit (Mandel, 1975, Chap.4).[3] This is important for a city like Montreal, which is a seaport and open economy.

Investment in the built enviroment also followed a pattern of expansion and contraction. S. Olson (1979) has shown how one particular building cycle affected the urban growth of Baltimore between 1865 and 1878. Within each cycle a social and geographical reorganization of urban space took place. In general each round of investment associated with a building cycle "applied a new technology, created a new cost structure of transport, and resituated Baltimore in the circuits of World trade", and showed "a definite spatial pattern of investment" (Olson,1979,559-60). The most

elementary data on building permits allow us to assert that the growth of Montreal occurred with essentially the same rhythms (Figure 2 in Hanna and Olson, 1983, 226).

The cyclical expansion and contraction of both industrial and building capital are the framework in which the reorganization of urban-economic and spatial structures take place. In each new cycle there was the growth of new economic sectors and occupations, new technology, new modes of transportation, and a differential expansion of the city.

(ii) Reorganization of the Labour Process

One of the most important elements in the transformation of economic structures in the nineteenth century was the reorganization of the labour process. A number of historians and economists have shown the extent to which the work process was altered and the importance of this alteration upon industrial growth. In particular, they have pointed to the disintegration and reorganization of a number of traditional trades (e.g., shoemaking and hatting), the developmeht of a new ethnic and sexual division of labour, and the growth of a vast semiskilled work force.

A recent study has described the transformation of the United States economy in terms of changes in the labour process. They suggest that the United States economy in the

nineteenth century can be divided into two overlapping phases: (1) the creation of a wage labour force from a nonproletarian population between the 1820s and the 1890s; and (2) the fundamental transformation of work and labour markets between the 1870's and the beginning of World War II (Gordon, Edwards and Reich, 1892, 48-164). In the first phase a wage-earning population was created by 'freeing' people from non-capitalist means of production by taking away their control over production. Although many workers lost their independence, the labour process went largely untransformed as capitalists still relied on traditional techniques and workers still retained some control over their skills and the work process (Gordon, Edwards and Reich, 1982, 48-99). After about 1870, however, during the second phase, the labour process underwent massive changes, and employers had to find new ways of increasing control over the labour force. This involved an intensification of mechanization, the application of new organizational forms and increasing control over production. Its effect was a homogenization of the labour force. The skills of many workers were eliminated or greatly diminished, and a vast army of semiskilled workers was created (Gordon, Edwards and Reich, 1982, 100-164).

R. Samuel (1977) argues that despite the reconstruction of the labour process in mid-Victorian Britain, much of the work was still in the hands of labour. Mid-Victorian Britain

had a wide spectrum of work places in which a wide variety of labour processes took place. The industrial revolution far from being based on the displacement of labour power by machinery and inanimate power, was centered on the primacy of labour power. The growth of large firms was often organized around the proliferation of small producing units, and many firms had mechanization in one department complemented by other practices such as sweating in others. Even though mechanization had penetrated many sectors of the economy "labour remained absolutely primary at the point of production" (Samuel, 1977, 47). For example, in the metal trades fitters were involved in the making of parts by hand, as well as the assembly of them, while many trades such as saddlery and woodworking were difficult to mechanize because of such factors as the variability of the raw material, and the inadequacy and high cost of machinery.

While these general overviews of the development of the labour process point to broad trends, a number of writers on both sides of the Atlantic have undertaken case studies of particular trades, cities and classes. (Hirsch, 1978; Cumbler, 1979; Stone, 1975; Jones, 1971; Gray, 1976). What all of these studies have in common is that they show that the reorganization of the labour process played a decisive part in the development of social relations of industrialization. The transformation of production that came with the separation of

the artisan from the means of production and with the growth of the factory centered upon a breakdown of artisanal practices, the degradation of skills, the decline of workers' autonomy at the workplace, and the emergence of a casual labour market. Capitalists were concerned with introducing technical change, cheapening and regularizing production while orientating production towards the market (Gordon, Edwards and Reich, 1982, 56-66). The process was an uneven one depending on local conditions, but by the end of the century a fundamental reorganization of artisanal labour practices in both North America and Britain was evident. By 1900 few trades had held out against the onslaught of the capitalist organization of work.

(iii) Separation of Home and Work

Associated with the reorganization of the labour process and the restructuring of economic activity in the nineteenth-century urban economy was the separation of home and work. The reorganization of production that came with the separation of the artisan from the means of production and with the growth of mechanization and the factory system destroyed the unity of the home/work relationship. In its place appeared a new set of structural relations between home and work.

In the mercantile city production was undertaken by the

artisan in the home or an adjacent workshop with the help of an apprentice, a journeyman and female relatives. In many cases the apprentice if not the journeyman lived in the home of the artisan. With the introduction and subsequent intensification of mechanization, the application of task specialization, and the increasing size of the firm and capital inputs, the autonomy of the artisan was undermined and workshop production became increasingly insignificant (Cumbler, 1979, 13-16; Gordon, 1978, 33-37; Hirsch, 1978, Chap. 1). An example of the importance of the closeness of the home/work relationship in the mercantile city can be assessed from Pred's study of Manhattan where in 1840 only 23% of the city's manufacturing population was employed outside the home (Pred, 1966, 332-36). Likewise, M. Feldman states that only 20% of the American labour force in 1780 was wage or salary earners. By 1880 this had increased to over 60% (Feldman, 1977, 34).

In the literature the separation between place of work and place of residence has generally been studied in terms of the increasing distance of the journey-to-work. In the mercantile city even those employed outside the home went short distances to work. In Manhattan in 1840 those of the manufacturing population who worked outside the home generally lived close to their places of work; while virtually no one lived more than a mile away from his or her place of work,

most lived within a quarter of a mile (Pred, 1966, 332-36). T. Hershberg et al. found that the journey-to-work in Philadelphia increased between 1850 and 1880 (Hershberg et al., 1981). In 1850 the vast majority of the workers travelled less than 0.6 miles (1 kilometre) to work, while the average distance had nearly doubled by 1880. There were, however, important differences among various sectors of the population. The journey-to-work was greater for the white-collar than for blue-collar workers. Differences also occurred within occupational groups. The separation of lawyers' places of residence from places of work became more striking by 1880, while physicians still combined work and residence. Differences among groups of artisans depended upon the extent of their market and the scale of the firm. Many workers in old industries such as sugar, morocco leather finishing and shipbuilding tended to live further from their place of work than did workers in new industries such as iron rolling (Hershberg et al., 1981, 134-41). According to Hershberg et al. the increase in the journey-to-work between 1850 and 1880 should not be attributed to the expansion of the city's transportation system. People still walked to work, but they walked farther because of residential densities, the expansion of the central business district, the growth of industrial firms and the greater suburbanization of the population relative to manufacturing jobs (Hershberg et al.,

1981, 141-60).

While a number of writers have demonstrated the gradual disappearance of the artisan workshop and the lengthening of the journey-to-work, little has been written on the connections between the separation of home and work, and the reshaping of urban structure. The major exception is a paper by J. Vance (1966) which points to the tremendous impact that the severing of home and work ties had upon housing structure, the labour force and work relations. According to Vance, the separation of home and work was a pivotal element in the social and economic character of the city. With the severing of the home/work relationship not only was there an increasing segregation of households by class and occupation, but also dramatic changes in land use. The separation of housing from productive activity made possible the development of a housing market in which housing was not tied to any single economic establishment or activity. As housing became 'generalized' and divorced from any direct connection with manufacturing, the physical form of urban space was transformed. The cellular structure of the mercantile city was replaced by stratified housing markets with spaces assigned to each class stratum.

Throughout the second half of the nineteenth century the industrial city remained for the mass of the working class a pedestrian city. Despite the severing of home/work ties, it

was only with the advent of cheap and accessible intraurban transportation in the twentieth century that the working class was able to disengage itself from job-related residential locations. While considerable capital was channeled into new and expensive housing in the suburbs, the working class was forced to occupy housing in and around the central core and industrial districts. Some skilled workers with higher incomes and status, however, may have moved to more peripheral locations by the end of the century and to different areas from the mass of the semiskilled and unskilled working-class. Nevertheless, the location of industry acted as a powerful magnet upon all sectors of the working class during the second half of the nineteenth century (Greenburg, 1981, 209-14; Ward, 1971, 85-87). In the pedestrian city, the size of the economic enterprise and the diversity of economic activity by district had a tremendous influence upon the nature of the residential structure. Large industries would create distinct labour and housing markets around them, which would be little affected by other enterprises. On the other hand, an area comprised of many small firms from different industries would have varied labour and housing markets. In districts with a diverse industrial base, usually centrally located, we shall find occupational, demographic, ethnic and housing variety. The character and form of the pedestrian city were greatly shaped by the changes taking place in urban land use.

(iv) Land-Use Patterns

Between the middle and the end of the nineteenth century the internal structure of urban land use underwent a dramatic change. The reorganization of the labour process and the separation of home and work made possible a radical restructuring of urban form. Compared to the "primitive specialization of land use" in the mercantile city, the industrial city by 1900 was one characterized by the "segregation of industrial, commercial and residential land" (Warner, 1972, 81, 104).

Throughout the second half of the nineteenth century the city exhibited an increasingly complex structure. The mercantile city, in contrast, is generally described as small in size, compact, unspecialized and relatively undifferentiated (Gordon, 1978, 33; Miller and Groves, 1979, 161, 325-37; Walker, 1978, 175-76; Ward, 1971, 87-102; Warner, 1972, 81-82). Although the functional separation of land uses by mid-century had not proceeded very far there was the growth of small exclusive residential areas, the centralization of economic activity relating to exchange, and the clustering of a few specific trades like printing and shipbuilding (Pred, 1966, 325-38; Walker, 1978, 176; Ward, 1971, 87). Industrial districts had not yet formed and manufacturing activity was relatively dispersed throughout the city. Warehouse, commercial, financial and administrative functions were

centered along the waterfront and the central core.

Spatial order did, however, exist in the mercantile city. Surrounding the wharves and the mixed central area were the housing of both the working population and the wealthy , while outside these areas were districts of mixed commercial, industrial and residential neighbourhoods (Warner, 1972, 82-83). A number of writers have shown that a degree of specialization existed in the mercantile city's central area as distinct wholesaling, retailing, financial and administrative districts began to emerge (Walker, 1978, 176; Davey and Doucet, 1975; Pred, 1966, 329-30; Radford, 1979, 403-05). Nonetheless, the degree of specialization in the mercantile city was limited compared to that brought about by the centralization of production and the rapid growth of industrialization after mid-century.

A much more elaborate internal differentiation of land use emerged during the second half of the nineteenth century in order to accommodate the new industrial functions. This was made possible by the new scale of industrial enterprise, the reorganization of the labour process, the creation of a large pool of cheap labour-power, the freeing of industry from waterpower sites by the utilization of steam power, and the intensification of cities as market and transshipment points (Walker, 1978, 186).

In the first two decades after 1850 the dominant form of

central land use was warehousing, which was devoted to manufacturing and commerce. Warehouses, as well as being used for storage space and mercantile activity, were employed as factories for the manufacturing sector (Ward, 1971, 89-93). This was possible for a number of reasons: the dominant role of merchants in the distribution of production; the need for a rapid response to unstable markets; the rent economies established in the central core; and the dependence upon agglomeration economies. The warehouses, however, were suitable only for small- or medium-scale establishments. Large-scale industries with internally complex and specialized processes, such as textiles, sugar refining and shipbuilding, tended to locate outside the central core. As well as manufacturing and commercial activities in the warehouse district, a small financial district emerged in the decades after 1850 (Ward, 1971, 88).

In the last years of the nineteenth century the central section of the city became increasingly divided into specialized areas along the lines of retailing, finance, adminstration and wholesale. The decline of the multi-functional warehouse after 1870 was followed by the emergence of the modern central business district. Financial and administrative districts continued to grow and expanded into commercial districts which in turn invaded adjacent residential areas. Extensive new retail districts centered on

the growth of the department store emerged in the central core after 1870. The impact of the increasing land-use specialization in the central city upon the location of industry was tremendous. Small-scale manufacturing was forced out of the central area and had to seek new locations on the edge of the central business district or in other locations in the city. Decentralization was particularly necessary for those industries increasing in scale or with an intergrated production process. The next section examines the factors underlying the location of industry in the industrial city.

(v) The Location of Industry

The formation of industrial districts and the growth of the industrial city in the second half of the nineteenth century have already been discussed in the light of a changing labour process, the separation of home and work, and the increasing specialization of land use. This discussion, however, needs now to be complemented by a sketch of some of the more important factors underlying the location of industry in this period.[4] Five of the more important factors are: (1) agglomeration economies (or external economies of scale); (2) internal economies of scale; (3) land values; (4) transportation costs; and (5) labour supply. These location factors, which neo-classical writers and others place at the beginning of an analysis of industrial location, are viewed

here as a product of the pressure of accumulation and competition, as well as the more specific development of investment decisions and historical change.

According to Walker and Storper, "agglomeration was the single most important locational factor" in the nineteenth century because "urban concentration itself is generative of growth" (1981, 496). Agglomeration is the mutually beneficial effect that is obtained when a number of firms are spatially concentrated. Interactions between firms are especially facilitated in large cities. Within a city agglomeration economies affected the location of industry in two major ways. First, transportation and communication costs could be reduced by clustering of firms. This was important where firms were small and their inputs and outputs were relatively unstandardized. For example, agglomeration economies were crucial for industries such as printing and clothing and jewellery manufacture. Secondly, a concentrated group of firms could achieve external economies of scale, by increasing the number of firms and their outputs at any one time and place. In conditions of uncertain and rapidly changing demand, production of small batches, and a large number of buyers and sellers, we find that external economies reduce rent and capital costs as well as provide rapid market information (Scott, 1980a, 16-19, 36-38).

Internal economies of scale refer to the benefits

accruing because of increasing plant size. The unit cost of production generally declines with the increasing size of the plant, although diseconomies can occur after a plant has reached a certain size (Cadwallader, 1984, 150). Large firms are able to employ integrated production processes which decrease their dependence on other firms. We can therefore distinguish two contrasting groups of industries: industries characterized by increasing internal scale; and industries characterized by rising agglomeration economies. The former would prefer central sites, the latter peripheral sites.

A third factor that interacts with industry is land values. The price of urban land, in general, declines with distance from the centre (Hoyt, 1933; Hoover and Vernon, 1962, 30-31; Fales and Moses, 1972, 53; Scott, 1980a, 13). Thus, there would be a tendency for the high priced land in the centre to repel industry while the low priced land on the periphery would attract industry. As cities grew, land values rose. Industrialization of a city meant rapidly rising land values and enormous differentials of land value between urban centre and periphery. The effect will be a more powerful competition and sorting out of land uses, separating industries and populations according to their ability and need to pay higher rents for centrality. The industries which achieved large internal economies of scale would need large tracts of land (Hoover and Vernon, 1962, 25-32). Thus,

large-scale industries such as sugar, steel and textiles would be more likely to locate on the urban periphery. On the other hand, in the "agglomerating" and small-scale industries, such as printing, jewellery, clothing and furniture, proximity to the central core was essential and to compensate for the high land prices at the centre they located in multi-story buildings. For example, in Chicago in the 1870s firms varied in their distance from the centre according to scale. Small-scale industries (2-19 employees) were located centrally while large-scale enterprises (100 or more employees) tended to locate on the periphery (Fales and Moses, 1972, 57).

The decentralizing tendency of large-scale industry in the nineteenth century was severely inhibited by transportation costs. The strong constraining role that transportation costs had on the location of industry was due to the expense incurred in moving commodities through the city. Intraurban freight transportation was both expensive and inefficient in the nineteenth century. While railroad rates in America ranged roughly from one to two cents per ton-mile, the traditional city form of transportation - the horse and cart - ranged from twenty to thirty cents per ton-mile. Also, the horse and cart could move commodities only in small lots (Fales and Moses, 1972, 67). No adaptation of steam power was ever achieved in this function. Only manufacturers producing goods of high unit value could afford

to move bulky inputs. Industries with heavy or bulky inputs would tend to locate where transport costs were minimized. Thus, heavy industry would tend to congregate near the major transportation nodes: wharves, canals, railroad terminals and railway tracks (Scott, 1980a, 4-7; Fales and Moses, 1972, 67-68).

The last important factor which had a bearing on the location of industry in the nineteenth century is labour. Differentials in the composition of the urban labour-force as well as the central location of labour were important elements in the location of industry. The different characteristics of labour in different parts of the city meant that employers had greater costs in attracting and holding workers in some locations than in others. Early industrial capitalists also had major problems as workers resisted the imposition of capitalist work discipline (Thompson, 1967; Gutman, 1976) while employers at the end of the century had to contend with a hostile trade union movement (Gordon,1978; Palmer, 1983). Intraurban differentials in wage rates played an important part in the location of industry (Scott, 1980a,7-13). Labour-intensive industry actively sought out areas where large labour pools existed, while the location of capital-intensive industry was dependent upon other factors (Scott, 1980a, 20-24). As in the case of freight factors, the transport of workers was a powerful constraint on the labour

supply over the city, and it inhibited and channeled industrial choice of sites (Hershberg, 1981, 141-52; Ward, 1971, 125-45). Finally, the 'interchangeability' of labour in the nineteenth century, job-substitution (from the worker's point of view) and worker-substitution (from the employer's point of view), ensured the joint preference for concentrations of industry and labour in central locations.

A. Scott has argued that the locational patterns of urban industry in the nineteenth century can be described in two ways. First, small-scale labour-intensive industry was characterized by central locations (Scott, 1980a, 22-24). These industries were susceptible to rapid changes in demand which made it difficult to systematize production and introduce machinery into the workplace. Despite the resistance to mechanization, small-scale industry could not resist an increasing task differentiation. As the division of labour progressed, a complex of economic activity grew to take advantage of the functional separation springing up with the increasing number of small-scale manufacturing establishments and workshops. Secondly, large-scale industry which handled large amounts of materials tended to locate in non-central locations (Scott, 1980a, 20-21). These industries were capital-intensive and inclined to locate in parts of the city where the assembly of material inputs was kept at a minimum cost. In nineteenth-century cities transportation costs were

at a minimumn at water and rail terminal locations. The dominant locational patterns of industry in the industrial city were then small-scale labour-intensive enterprises inhabiting the outer central core, and large-scale capital-intensive firms established at the waterfront and rail terminals, as well as pockets throughout the city.

(vi) Residential Patterns

The 'modern' industrial capitalist city is described as one in which there is strong residential segregation of classes. Sometimes contrasted with this is the conception of a 'preindustrial' or mercantile capitalist city. The transformation from the 'preindustrial' to the 'modern' city has generally been regarded as entailing a 'transition' which took place in the second half of the nineteenth century. In this section I am concerned with the literature on the residential patterns of the nineteenth-century British and North American city[5] and explicitly with the transition from the 'preindustrial' to the 'modern' city, and the emergence of class segregation.

The literature on nineteenth-century residential patterns has been dominated by writers of the ecological school begun by Park and Burgess (1925) and carried on by Hoyt (1939), and Shevky and Williams (1949). Much of the theoretical underpinning of the 'new wave' of research in the 1970s into

the differentiation of residential patterns was rooted in the Chicago school's idea of natural areas, population succession, ethnic concentration and assimilation[6] (Cannadine, 1977; Goheen, 1970; Lewis, 1979; Warnes, 1973). To take one example, C.R. Lewis in his study of Cardiff between 1845 and 1875 is concerned with constructing "a diagrammatic ecological model of the transition" from the preindustrial to the industrial city (Lewis, 1979, 130). He states that Cardiff of the 1850s was "compatible with Sjoberg's image of a pre-industrial city" while "the 1870s pattern represents the initial stages of the situation envisaged by Burgess" (Lewis, 1979, 150). His paper is concerned with describing the changing residential patterns, not with the processes giving rise to the changes. If any explanations are given, they are inadequate ones such as "pressures" imposed by the rapidly increasing population" and "the natural process of housing decay and obsolescence" (Lewis, 1979,147,150).

The dominance of ecological theory in the literature of residential patterns has had its critics. D. Harvey has called for a theoretical position which centres on "specifying the <u>necessary</u> relationships between social structure in general and residential differentiation in particular" (1975,5). Residential differentiation is not simply a passive reflection of individual preferences working in a market context but "an integral mediating influence in the process

whereby class relationships and social differentiation are produced and sustained" (Harvey, 1975, 368).

Likewise, Bassett and Short argue that too little attention has been paid "to the societal background of spatial organisation" (1980, 5). They criticize the various schools and models which have been concerned with residential structure. Even though each of these approaches makes an important empirical contribution to the literature on residential differentiation, they do not provide a coherent, systematic theory which helps explain the development of, and the mechanisms responsible for, residential structure. Bassett and Short call for a redirection of empirical research toward the study of the relationship between housing markets and processes, household consumption needs, class segregation processes, and the impact of the reproduction of social relations (1980, 212-14).

R. Harris (1984a) argues that the complexity of the segregation issue makes any simple generalizations inadequate. While noting that "most studies of social segregation have confined themselves to the description of pattern, thereby neglecting process", Harris criticizes Harvey for his emphasis upon the functional aspects of segregation for capitalism (1984a, 29,31,41). Harris argues that segregation should be studied as part of the process of class formation (1984a).

While a number of writers have contested the significance

of, and the theory behind, social segregation in general, historians and geographers have produced a vast array of arguments and empirical data concerning the nineteenth-century city. Much discussion has revolved around the issue of when the 'modern' pattern of residential segregation came into existence. D. Ward in a number of articles has argued that residential differentiation was weakly developed until the end of the nineteenth century (1975; 1976; 1980). He contends that "the kind and level of residential and social differentiation in those cities which had attained a substantial size by the early and mid-nineteenth century were somewhat different from those displayed by the same cities at the turn of the century" (Ward, 1975,137). What little segregation that existed at mid-century was of the middle class from the rest of urban society and was rooted in seventeenth and eighteenth-century mercantile capitalism (Ward, 1975, 139-41, 1980,159). In his study of residential patterns in mid-nineteenth-century Leeds, Ward (1980) found that the residential patterns of both classes, and the social strata making up the classes, were less differentiated from one another in 1871 than they were in 1851. Thus, according to Ward, the development of the 'modern' contemporary city was not a rapid one taking place overnight but a slow one in which the Victorian city was a 'transitional' one leading to the modern city.

D. Cannadine (1977) in his paper on the Birmingham estate of Edgbaston disagrees with Ward's contention that the mid-nineteenth-century city differed radically from the city at the turn of the century. Drawing on the ecologists, Firey, Hoyt and Burgess, he argues that residential differentiation did exist in the English mid-nineteenth-century city. A modern pattern of segregation existed in England before it did in America because of rates of population growth, landowners' preferences and middle-class attitude and actions. The advent of mass transportation only accuentuated the segregation in the English city while accompanying and creating it in the American city (Cannadine, 1977, 460-66). Although Cannadine shows how the affluent minority in Edgbaston was segregated from the rest of Birmingham's population, he does not disprove Ward's argument that working-class residential patterns were complex and that working-class strata were segregated from one another.

Many of the studies of the British and Canadian nineteenth-century cities have found results similar to what Ward found in Leeds. Goheen (1970) finds that social and economic differences were not translated onto the Toronto landscape in 1861. In 1861 Toronto was a city "markedly different from the modern model" (Goheen, 1970, 219). By the end of the century, with the exception of the declining importance of religion as a segregation factor, Toronto "can

be described in exactly the terms appropriate to Toronto in 1960" (Goheen, 1970,220). Likewise, Lewis finds that there was little change in the patterns of segregation although "by the 1870s,...Cardiff was beginning to show patterns of segregation which might be described as modern" (1979,150). Cardiff in 1850 presented a picture similar to Sjoberg'g pre-industrial model. The growth of the port and the concomitant population increase had the effect of bringing minor changes to the city so that by the 1870s the 'modern' pattern described by Burgess was evident (Lewis, 1979, 147-50). A. M. Warnes (1973) in his study of Chorley, a small industrializing town in Lancashire, found that in 1851 it was neither a pre-industrial city of the Sjoberg type nor the 'modern' type of Burgess and Park. Chorley was in 1851 a 'transitional' city in which socio-economic status was a reasonably significant factor in describing residential location, but in which the role of occupation "was still strong and pervasive" (Warnes, 1973, 186).

In general there has been agreement with Warnes's assessment of the non-applicability of Sjoberg's model to the nineteenth-century city, regardless of the city's degree of industrialization. For example, Davey and Doucet in their examination of Hamilton in the early 1850s concluded that it was a commercial city which "did not resemble a feudal place, though it also differed from the modern city in a number of

significant ways" (1975, 322). Although Hamilton's central-area activities were well-defined and had a degree of spatial segregation, the city's residential patterns did not accurately reflect social divisions (Davey and Doucet, 1975, 334). In a later paper, Doucet (1976) found that residential patterns in Hamilton became more segregated between 1852 and 1881. Hamilton in 1881 was a more residentially segregated city than in 1852, but despite this trend Doucet suggests that the pattern of homogeneous residential patterns had begun to develop by mid-century (Doucet, 1976, 99). It was in the second half of the nineteenth century, however, that "the working class became more clustered together, and, simultaneously, more distant, in physical terms, from the well-to-do (Doucet, 1976,101).

While a number of writers have debated the timing of the emergence of 'modern' patterns of class segregation, some writers have attempted to shift the focus of the debate. O. Zunz argues that rather than debating when modern patterns of segregation came into existence it is more fruitful to view segregation as always existing but taking different forms in the nineteenth century (1977;1980). R. Harris (1984a) has recently argued that residential segregation needs to be understood in terms of its significance for class formation. Arguing that segregation and class have been considered separately from one another he suggests that an analytical and

historical framework is needed in which the two terms can be examined together. Concerned with the impact of segregation upon political activity, Harris puts forward a framework in which the dimensions of class structure, housing tenure, communications technology and political activity are seen as particularly important.

An understanding of residential segregation in the nineteenth-century city hinges upon a comprehension of the class nature of society. Many writers have tended to view segregation from a social ecological perspective where biological and cultural features of human society are seen as the primary causes of residential differentiation. There is little doubt that urban spatial patterns reflect divisions centered on, for example, the family life cycle and ethnicity. These divisions, however, are part of a more fundamental process of the development of class. The next section examines the development of class in the nineteenth-century industrial city.

(vii) Class in the Nineteenth Century

One of the major developments taking place in the nineteenth-century city was the transformation of social classes. This section will be concerned with the application of class analysis to the nineteenth-century city. It will consider first the approach to class used in this thesis, and

second, how contemporary Canadian Weberian and Marxist writers have used class in their analysis of the nineteenth-century city.

Capitalist society is composed of two basic and antagonistic classes: the bourgeoisie and the working class. The bourgeoisie, or the capitalist class, is distinguished by two characteristics: (1) the control of capital in the form of land, machinery, stocks, etc; and (2) the use of wage-labour to produce more capital. The working class, or the proletariat, on the other hand, do not control capital in any form and must sell their labour for a livilihood. These two classes are antagonistic because the bourgeoisie, who own the means of production, appropiate surplus value from the proletariat (Edel, 1981).[7]

This polarization does not, however, fully explain the complex reality of class societies. Marx himself, in his historical analyses, acknowledges this greater complexity. In most cases it is not enough to view the difference between the two classes in terms of the ownership of the means of production. Indeed, the allocation of class position by the relation to the means of production often presents more problems than it solves. Some writers have attempted to solve this problem by employing the idea of a 'middle' class -the petite bourgeoisie - for those who do not directly own the means of production or contribute to the production of

material commodities. N. Poulantzas (1975) argues that the division between capital and labour is the primary class distinction, and that those not directly implicated in material production, that is, the petite bourgeoisie, are members of an ambiguous class. For Poulantzas, this petite bourgeoisie is composed of two sectors, the 'traditional' and the 'new', and both are excluded from the polarization of 'productive' workers and capitalists. Poulantzas's position, however, takes little account of the aspects of control and realization in the process of capital accumulation.

E.O. Wright takes a more flexible position than Poulantzas. He argues that the ambiguities within the class structure can be explained by the existence of contradictory positions which are related to the lack of control over capital and labour (Wright, 1979, 61-110). The class position of the petite bourgeoisie must be viewed, he argues, in "their relationship to the fundamental interests of classes defined with the social relations of production"(Wright, 1979, 91).

What has been neglected by Poulantzas, Wright and other writers concerned with the class structure of advanced capitalist societies, is the structure's nineteenth-century origins. To understand the class structure of nineteenth-century society it is necessary to construct a framework which is rooted in the historical reality of the time. As B. Palmer writes in the preface to his study of

Hamilton's skilled workers, "Theory is meant to inform historical inquiry and, in turn, to be informed by historical research" (Palmer, 1979, xiv). While it would be ahistorical and misleading to transfer a theoretical understanding of class structure from advanced capitalist societies to the nineteenth century, it would also be a mistake to assume that the fundamental principle underlying Poulantzas's and Wright's work is not relevant.

In the last ten years a large number of studies of nineteenth-century Canadian cities have been published. Most have side-stepped or ignored the question of class, but three in particular have been concerned with understanding the class structure of the city under question.

M. Katz (1975) in The People of Hamilton, Canada West, has argued that Hamilton in the mid-nineteenth century had a three-class structure consisting of entrepreneurs, artisans and labourers. According to Katz, "it would not be accurate to call the entrepreneurs a capitalist class, for this would carry with it the implication that Hamilton had a two-class society, rather than three quite distinct classes" (1975, 187). This entrepreneurial class had in common certain characteristics: its power, wealth and Protestantism; its high status within the community; and shared common interests (Katz, 1975, 185-86). The artisanal and labouring classes differed from each other primarily along the lines of the

ownership of property and the means of production, but also by wealth, education and age at death (Katz, 1975, 207).

Because Katz equates class with status, his divisions are greatly confused. First of all, his 'classes' are extremely tenuous in their theoretical grounding. One example will suffice to highlight this. He classifies clerks as members of the entreprenurial class because, as he states, "they shared the aspirations, prejudices, and deference of their employers" (Katz, 1975, 194). Secondly, he makes no attempt to delineate the difference between those engaged in the capitalist mode of production from those engaged in simple commodity production. This is a problem in any class analysis, especially for the nineteenth century, and Katz does not do justice to its complexity. According to Katz's classification, artisans can be members of both the entrepreneurial and artisanal class. This confusing classification pays no heed to the similar positions artisans held in their relationship to the industrialization of Hamilton regardless of their status or wealth. Lastly, his classification is based primarily on a ranking by occupation and status rather than on the individual's relation to the means of production or to the control and realization of surplus value.

Unlike Katz, the approach of B. Palmer (1979) in A Culture in Conflict does not consider such sociological factors as status, wealth, number of wage earners, as

important in an analysis of class. According to Palmer, "class...is inseparable from class struggle" (1979, xvi). Class is an historical experience which can only be fully understood by viewing people within their wider cultural context. To make a quantitative analysis of class by utilizing occupational categories only obscures the historical complexity of the relationship between class and society.

Palmer's approach has many positive aspects, primarily the rich and textured picture of Hamilton that emerges in his writing and analysis. There is, however, a fundamental weakness which renders his illustration inadequate, a weakness which stems from his methodological approach to class. Palmer's underlying assumption is that the working class, despite its internal divisions, is a homogeneous group, regardless of its position within the social relations of production. This is obviously incorrect and inconsistent with his explicit recognition of the city's complexity. It obscures the nature of class conflict in late nineteenth-century Hamilton. If Palmer had utilized occupational data within a wider theoretical class context, his analysis would be somewhat less bewildering.

Similarly G. Kealey (1980) in Toronto Workers Respond to Industrial Capitalism, 1867-1892, does not give a working analysis of class. Although he writes that his aim is "to capture the Toronto working class at its conception" (Kealey,

1980, xiv), he does not define who belongs to the working class. We are led to assume throughout Kealey's and Palmer's studies that only skilled workers, artisans who are becoming proletarians, and those engaged in direct material production are members of the working class. Unskilled workers in non-material production, women and the 'unproductive' working class are left outside the basic conflict between capital and labour, and are treated as ideologically subservient to the 'true' working class.

These criticisms of Kealey and Palmer are minor ones compared to the confusion created by Katz. Kealey and Palmer, for all their faults, do provide a strong sense of the class character of the Canadian nineteenth-century city, although they do not bring out the full complexity of the class structure which characterized these urban societies.

It will be argued here that a useful approach to the class structure of nineteenth-century society might be to view class in terms of control over, and realization of surplus value, in conjunction with the basic polarization centered around the 'productive' working class and bourgeoisie. According to this approach, capitalists are those who directly appropriate surplus value through the ownership of the means of production or through the control of the circulation of capital. For example, bank managers who neither produce surplus value nor own the means of production, are

nevertheless part of the capitalist class as they control the circulation of one part of capital and contribute to the expropriation and reproduction of surplus value. The working class is that class which does not own or control capital, but helps realize as well as produce surplus value. For example, bank janitors, even though they are not 'productive' workers, are part of the working class as they do not control the means of production or the circulation of capital, but they do contribute to the realization of surplus value. Those who do not fulfill the criteria of bourgeoisie or working class are members of the petite bourgeoisie. The petite bourgeoisie differs from the capitalist class in that it does not directly appropriate surplus value but is involved in the organization and control of capital which is then appropriated by the bourgeoisie. It differs from the working class in that it has a degree of control over the work process even though it does not own the means of production or the institutions controlling the circulation of capital. For example, a group of engineers hired to plan a new bank building are neither directly appropriating nor producing surplus value, but they are making possible the continued appropriation of surplus value while working in a workplace with a degree of autonomy.

Obviously, the assignment of any particular individual or occupation to one class or another requires a sensitivity to the historical nuances. Indeed, the problem of specifying the

class position of an individual or occupation haunts the construction of a viable and practical class structure for the nineteenth century. The above mentioned scheme does introduce some coherence and a logic which provides an insight into nineteenth-century social relations. It also maintains a degree of flexibility.

Conclusion

By the second half of the nineteenth century a new form of capitalist urbanization dominated the economic and spatial structures of North American and British cities. The mercantile city which was based upon a petty commodity mode of production was characterized by an economic structure rooted in the production of commodities by independent artisans and mercantile exchange. The mercantile city's spatial structure was characterized by an interweaving of residence and economic activity, but with a tendency towards the centralization of the bourgeois and the middle-class and the location of the poor on the periphery. The corporate city of the twentieth century is dominated by decentralized large-scale industrial economic activity, new forms of labour organization and the development of large class-based residential areas. I believe that between these two there is a distinctive city, not just a transition, but a definable 'type'. The industrial city was characterized by relatively small family- owned industry

located near the urban core and the formation of large working-class districts alongside new bourgeois and middle-class neighbourhoods.

The growth of the industrial city was dependent upon a number of factors. The reorganization of the labour process paved the way for the creation of a large urban proletariat and a class of industrial capitalists. The separation of home and work as capitalists gained control over the means of production led to new forms of housing and labour markets. Specialization of land use ensured the continued development of capitalist forms of production.

The formation of industrial districts and the development of class-based residential patterns in the industrial city were rooted in the particular character of capital accumulation in this period. Industry during the second half of the nineteenth century was shaped by its dependence on various forms of labour processes, the unconsolidated nature of capital, the weakly developed form of consumption , and the cyclical nature of expansion. The industrial city was not a static entity. Just as the roots of the industrial city stretch back to the developments taking place in the mercantile city, so the dynamic nature of capital accumulation in the industrial city paved the way for the emergence of the corporate city in the twentieth century. The industrial city was characterized by the establishment of distinct industrial

districts close to the urban core and major transportation nodes.

Working-class residential areas surrounded these rapidly growing industrial districts as long work hours, low wages, seasonal and cyclical unemployment, and a number of people in each household working outside the home made accessibility to place of work a necessity. The existence of inadequate transportation facilities contributed to the pedestrian character of the industrial city. As long as these factors remained powerful, and they did for all of the second half of the nineteenth century, the large working-class residential areas would remain relatively undifferentiated in terms of class, but differentiated in terms of activity. The most dramatic characteristic of the industrial city's residential patterns was the rapid segregation of the bourgeoisie and middle classes in suburban neighbourhoods. It is the conjunction of economic features alongside the development of residential patterns that distinguish the industrial city from the mercantile and corporate cities.

Notes

1. For example, the effect that class segregation has upon inter- and intra-class relations, the allocation of resources through urban space, etc..

2. For recent reviews of the social geography of the nineteenth-century city see Radford (1981) and Conzen (1983).

3. Mandel's work is especially important because it analyses economic cycles in geographical and class terms. His cycles are essentially the same as those reported earlier by Kondratieff. R. Walker also argues that economic cycles played a crucial role in the nature and timing of economic growth in nineteenth-century cities. He points to a second type of cycle, Kuznet waves, lasting anywhere between fifteen and twenty-five years (1978, 170-71, 184-85).

4. For the purpose of this thesis it is not necessary to review the vast literature that has been written on industrial location. A recent paper which is highly critical, and provides a good overview, of this literature is Walker and Storper (1981).

5. For a recent review of the literature on the twentieth-century city see Harris (1984a; 1984b).

6. This review will not deal with the development of ecological theory since the 1920s. For a good critical review see Bassett and Short (1980, 9-24).

7. For detailed analysis see Marx (1977).

CHAPTER TWO: MONTREAL THE PREMIER INDUSTRIAL CITY OF CANADA

> As it...has but few extensive manufactories to support it, [Montreal's] continued increase must depend upon the trade it can command. (Bosworth, 1839, 194).
>
> Factories and industrial establishments of various kinds have been erected in the city and its immediate vicinity....And other manufacturing establishments are being continually added thereto. (Report of the Minister of Agriculture, 1888).

Introduction

To most inhabitants of Montreal in the 1830s the idea that the city would become by the end of the century the premier manufacturing city in Canada would have seemed ridiculous. In the first decades of the nineteenth century the old commercial link connecting Canada and Europe, centered on the fur trade, had lost its importance, and by the 1830s, a new link based on the export of timber and agricultural products had been established to take its place (Easterbrook and Aitken, 1965, 253; Tulchinsky, 1977,4-5). Montreal's economy was dependent upon mercantile exchange and petty commodity production. Montreal businessmen of the likes of Peter McGill and George Moffatt concentrated their activities on the export trade and finance. Merchants were unwilling to invest in industry primarily because the returns on capital

from industrial investment were very slow. Some manufacturing was undertaken by artisans for a local market. The craft shop, where the artisan may have employed an apprentice and a journeyman, was based on hand labour and 'pre-industrial' methods of production. Throughout the first half of the nineteenth century, however, the basis for the development of capitalist industrialization was being laid. After 1850 the introduction of vast amounts of capital and of machinery, the reorganization of the work process, and the existence of a large labour force made possible the development of industrialization in a manner and on a scale unknown and unthinkable in the 1830s.

In the second half of the nineteenth century the rapid growth of Montreal's industry was responsible for the development of class residential patterns. The growth of industrial districts was centered upon the diversification and differentiation of industry. The spatial framework for residences was generated by the industrial spaces, by the contrasts between large and small industries, between capital- and labour-intensive firms, between declining and growing sectors, between peripheral and central locations, and between the east end and the west end.

The growth of Montreal's industrial sector took place within the framework of the development in Canada of a transportation infrastructure, a wage-labour force, rural

specialization and growing state intervention.[1] In the nineteenth century a transportation network was created which integrated and expanded the national market, brought foreign capital into the country, created a fixed infrastructure, and made possible multiplier effects throughout the economy (Pentland, 1950, 1981; Easterbrook and Aitken, 1965, 317; Hamelin and Roby, 1971,280). By the late 1840s Canada's canal system had been completed, and beginning in the 1850s a railway network was begun. Throughout the first half of the nineteenth century a wage-labour force was in the process of being created (Pentland, 1959). According to Pentland, by the 1850s a capitalistic labour market was in place; it was characterized by stability of labour demand, a large enough supply and little outflow. This system had attained a reasonable degree of sophistication by the 1870s. Canada's first proletariat were unskilled Irish and skilled British immigrants. French Canadians in the beginning entered the capitalistic labour market on a casual or seasonal basis. By the second half of the nineteenth century developments taking place in the countryside spurred industrial and urban expansion (Hamelin and Roby, 1971, 76; Pentland, 1950, 471;Palmer, 1983, 9-10). Rural over population, especially in Quebec, forced many families to leave the land and to migrate either to the cities such as Montreal, or to travel to the mill towns of New England (Hamelin and Roby, 1971, 373;

Linteau, 1982, 29). Agricultural surpluses provided a foundation for industrial and urban expansion in Canada as well as opening up markets in the United States of America (Hamelin and Roby, 1971, 76; Pentland, 1950,471). The Canadian state played an important role in shaping the development of Canada's industrialization. The Cayley Tariff (1858) and the Galt Tariff (1859) provided protection for a number of Canada's early industries (Kealey, 1980,3-17). The state was also heavily involved in financing the transportation infrastructure, particularly the railways (Pentland, 1950; Easterbrook and Aitken, 1965,317).

While these developments were taking place throughout Canada in differing degrees, Montreal was one of the first Canadian cities to feel the early affects of nineteenth-century industrialization. It was in the second half of the century that the radical changes taking place in the city's social and spatial structures became evident. The labour process was being transformed. For example, in the shoemaking industry the division of labour preceded the introduction of machinery (Burgess, 1977). Concomitant with the reorganization of the labour process was the increasing separation of home and work (Bradbury, 1984, Chapter One). The split between home and work was not only a process affecting the working class; the city's elite moved their residences from the city centre to the more salubrious parts

of the city (Hanna and Remiggi, 1980, 10-11). Montreal's land-use patterns were also being fundamentally altered. Old Montreal became increasingly taken over by retailing commercial, financial and administrative functions while industrial districts were being formed in adjoining areas (Bellavance and Gronoff, 1980; Bradbury, 1984; Conter, 1976; DeBonville, 1975; Lamonde, 1982). With the development of industrial capitalism in Montreal new social classes emerged (Linteau et al., 1983). The general conditions that were instrumental in the growth of industrial capitalism in other North American cities were also evident in Montreal.

The rest of this chapter will examine the development of industry in Montreal in the nineteenth century. Starting out with a description of industrial growth in the first half of the nineteenth century, it will then turn to the large-scale expansion of industry after 1860. It will outline the diversification and differentiation and the location of industry as it developed throughout the period, 1860-1900. To show just what the differences are between the various industrial sectors in terms of scale, capital and location it is necessary to go into considerable detail. The findings will then provide the context in which residential patterns can be analyzed in Chapter Three.

Industry in Montreal, 1830-1900

(i)Early Beginnings

While Bosworth and other Montreal inhabitants in the 1830s were spouting the gospel of mercantilism other less reverent Montrealers were converting to industry. In the first half of the nineteenth century the development of industry was not associated with indigenous merchant capital but was in the hands of former artisans or British and American immigrants who brought capital with them to Montreal (Tulchinsky, 1977, 204-5). Industry was slow to grow in the first half of the nineteenth century, but by the 1830s there existed breweries, distilleries, a rope works, a type foundry and ready-made clothing and shoe establishments as well as a number of metal-working firms. A great amount of industrial activity was located in a part of Sainte-Anne ward known as Griffintown. In 1831 the Montreal Gazette stated that "Griffentown (sic) has more machinery in operation, within its limits, than any other portion of Montreal" (July 16, 1831, 2). The Eagle Foundry, for example, had a steam engine of eight horse power which ran lathes, grindstones and trip hammers. Other establishments employing machinery, and in some cases steam engines, were a nail factory, an oil manufactory, a soap and candle works, a comb manufactory, a tannery, a smut mill and four flour mills. Although Montreal

had but "few extensive manufactories" by the 1830s, there was a small industrial base upon which later growth would develop.

By the mid-1850s Montreal's industry had grown enormously, especially in the central city and the western section close to the Lachine Canal (Tulchinsky, 1977, 203-31). During the 1840s a number of industries grew. Montreal's foundries built more and more steam engines. The completion of the second stage of the Lachine Canal in the late 1840s drew industry to the city and "made possible a rapid acceleration and diversification of industry" (Tulchinsky, 1977, 222). The 1856 report of the Celebration Committee of the Grand Trunk Railway provides an account of the more important firms located in the city's central district and along the Lachine Canal. The original intent had been to give "a full account" of its manufactures", but this proved impossible and it had to be content with "the Factories at the Canal" (Celebration Committee, 1856, 37). What the Celebration Committee proved beyond any doubt was that by the middle of the 1850s "Montreal may fairly lay claim to the character of manufacturing as well as a commercial city" (Celebration Committee, 1856, 38). At least twelve establishments were employing steam power: three threshing machine works, two soap and candle works, and rubber, sugar, rope, engine, nail and bellow factories as well as a shipyard. Redpath's sugar refinery, which according to the Celebration

Committee had the largest physical size of any factory in Montreal, employed a fifty horsepower engine and a boiler with a capacity of one hundred and fifty horsepower. The Saint-Lawrence Engine Works, employing one hundred and fifty men and apprentices, used finishing and shearing machines and a trip hammer in its smiths shops, while its boiler shop had five fires as well as a large quantity of machinery. This machinery was run by a twenty horsepower engine in the finishing shop while waterpower ran the machinery in both the finishing and boiler shops.

Of the firms enumerated by the Celebration Committee, fourteen employed more than one hundred workers. The largest were [illegible]n and Childs shoe factory and Moss Brothers clothiers each of which employed eight hundred workers. John Aitken's shirt-making factory employed over three hundred workers and Cantin's shipyard at least two hundred. Twenty-six other firms employed between twenty-one and ninety-nine employees.

By the 1850s a distinct industrial district had emerged in the western section of the city around the Lachine Canal and through part of the central core. Utilizing a diversity of power sources and machinery and employing a large number of workers a group of industries emerged which had a number of linkages between them. The building of the Great Trunk Railway during the 1850s in Sainte-Anne's Ward had an enormous influence upon the development of Montreal's industrial base.

A. Conter has suggested that the Grand Trunk created a 'company town' effect around the train shops (1976,11). It certainly was responsible for the growth of rail-related industries such as nail factories, foundries and cooperages.

While the Lachine Canal area became the locus of heavy industry such as metal working, shipyards and engineering, the city's central core was the district for the light industries such as clothing, boots and shoes and cabinet making. Large light industry firms such as Moss Brothers' factory were located along the Lachine Canal but most clothing manufacturing took place in small lofts in the central district. Montreal's industry by the 1850s was quite substantial with a diversity of industrial production employing large amounts of capital, machinery and workers. In the forty years following the 1850s, however, Montreal's industry was to develop rapidly resulting in greater contrasts of scale, capital and location.

(ii) The Development of Industry in Montreal in the Second Half of the Nineteenth Century

a) Sources for Industry in Montreal

Beginning in 1871 it is possible to undertake a more extensive and systematic examination of Montreal's industry than previously. The industrial section of the Canadian census from 1871 to 1901 provides information about Montreal's

industry such as the number of firms, the number of employees, and the capital invested in each firm. The censuses suffer, however, from some serious shortcomings, two of which stand out for our purposes. First, the criteria used for the inclusion of an industrial establishment in the 1901 census are radically different from those of the 1871, 1881 and 1891 censuses. While the census from 1871 to 1891 provides information for all establishments regardless of size of establishment, the 1901 census furnishes data only for workshops and factories employing five or more people. An added difficulty of the 1901 census is that the published industrial census does not supply data on the number of employees or the amount of capital invested for industries comprised of three firms or fewer. As a result the 1901 census is of little use for a great deal of the analysis under taken here. Accordingly, the large part of the examination of Montreal's industry will be taken from the 1871, 1881 and 1891 censuses only. A second shortcoming of these industrial censuses is connected to their spatial coverage of industry. Only the 1871 and 1901 censuses specify location by census district. The 1901 census, as mentioned above, however, supplies an inadequate picture of the city's industries as it does not include the small firms. To compensate for this omission, an examination of the Montreal section of Lovell's Business and Professional Directory of the Province of Quebec,

1902-03 was undertaken and was used in conjunction with the 1901 industrial census. Although the census and the Directory do not provide complete coverage, they do furnish an adequate picture, for our purposes, of the location of industry within Montreal.

(b) The Growth of Industry, 1871-1891

After 1871, Montreal's industry grew dramatically. As Table 2.1. indicates, between 1871 and 1891 the number of employees and the number of establishments increased sixty-nine percent and forty-six percent respectively while the total value of the products and the amount spent on raw materials more than doubled. The most startling fact is, however, the massive increase in the capital invested which rose fourfold in the twenty years. (In an era of little inflation, this was a real incease in the values of building and machinery.) In 1871 each establishment, on average, utilized over $10,000 in capital while by 1891 this figure had increased to over $28,000. The growth of the various inputs was not uniform. The figures indicate that capital and raw material inputs as well as the number of employees increased more in the 1870s than in the 1880s. For example, while capital investments rose from $11 million in 1871 to almost $31 million in 1881 (an increase of 179%), they only grew to $45 million by 1891 (an increase of 46%). Despite the growth of capital and the number of employees during the 1870s the

		1871	1881	1891	% CHANGE 1871-1891
Establishments		1 097	1 301	1 604	46
Employees		21 187	32 129	35 746	69
Capital	($)	11 101 031	30 943 743	45 050 399	306
Cost of Materials	($)	19 037 962	31 349 000	40 089 091	111
Value of Products	($)	32 731 966	50 600 000	65 868 857	101

Table 2.1.: Montreal's Industry, 1871-1891

Source: Census of Canada,1870-1871, Vol. 3,Tables 28-53,290-445
Census of Canada,1880-1881, Vol. 3,Tables 29-54,324-496
Census of Canada,1890-1891, Vol. 3,Tables 1-379

'62

number of establishments grew more rapidly in the following decade. This suggests that the 1870s was a period in which the expansion of large-scale, capital-intensive industry took place, while the 1880s was a decade characterized by the proliferation of small-scale industry. This helps explain why the average number of employees in each firm increased from 19.2 in 1871 to 24.7 in 1881, but declined over the following ten years to 22.3.

While the census captures the broad trends in Montreal's industry it does not adequately specify the cyclical properties described in Chapter One. Montreal's economy in the second half of the nineteenth century functioned within a 'long wave' in which the period of expansion ran from 1851 to 1873, and the period of contraction ran from 1873 to 1896 (Hamelin and Roby, 1971, 76). Within each of these broad movements there were cycles of growth and depression (Chambers, 1964; Hamelin and Roby, 1971, 76-98). For example, the first part of the 1850s was a period of expansion characterized by the growth of Canada's railway network, a financial and banking system, new industrial sectors, and agricultural surpluses. From 1857 to 1862 there was a contraction in the Canadian economy and a severe financial panic (Hamelin and Roby, 1971, 77-84). The ebb and flow of economic activity had enormous effects upon various aspects of Montreal's development. For instance, the depression years

after 1872 adversely affected the growth of unions, urban construction, and led to increasing unemployment (Lipton, 1978, 38-39; Bernier, 1973, 43). In the lean years in the middle of the 1890s the Montreal Immigration Agent wrote that the:

> general depression which prevailed in this city during the present year [1894] was doubtless responsible for the dull labour market and the decline in the wages of the workingmen. (Report of the Minister of the Interior, 1895)

Each surge of activity in the economic cycle saw the growth of different industrial sectors. The leather industry, for example, grew rapidly in the first wave of manufacturing investment in the 1850s, continued to grow until the 1880s, and then stabilized. In the wave of manufacturing investment in the 1880s a number of sectors such as metal-working and tobacco expanded, while new ones such as textiles emerged (Linteau et al., 1983, 129).

If the overall growth of Montreal's industry was dramatic and uneven, the same could be said for its individual sectors. Throughout the period, as Table 2.2 indicates, four sectors dominated: clothing; food; metal-working and leather. The leather industry, composed of boots and shoes and tanneries, accounted for over 25% of Montreal's industrial employees in 1871, but dramatically declined over the following twenty

1871					1901				
SECTORS	FIRMS	EMPLOYEES NO.	%	EMPLOYEES PER FIRM	SECTORS	FIRMS	EMPLOYEES NO.	%	EMPLOYEES PER FIRM
Leather	127	5408	25.5	42.6	Clothing	527	6957	19.5	13.3
Clothing	247	3793	17.9	15.4	Food	181	6043	16.9	33.4
Metallurgy	101	2449	11.6	24.2	Metallurgy	135	4180	11.7	31.0
Food	96	2291	10.8	23.9	Leather	139	3956	11.1	28.5
Construction	153	1740	8.2	11.4	Transportation	75	3322	9.3	44.3
Wood	99	1333	6.3	13.5	Construction	186	3097	8.7	16.7
Printing	47	1095	5.2	23.3	Wood	109	1691	4.7	15.5
Transportation	59	491	2.3	8.3	Printing	64	1524	4.3	23.8
Luxury	40	252	1.2	6.3	Paper	9	581	1.6	64.6
Chemicals	27	216	1.0	8.0	Chemical	27	575	1.6	21.3
Shipbuilding	14	210	1.0	15.0	Textiles	9	568	1.6	63.1
Textiles	6	169	0.8	28.2	Energy	6	499	1.4	83.2
Energy	1	72	0.3	72.0	Luxury	47	311	0.9	6.6
Paper	-	-	-	-	Shipbuilding	11	235	0.7	21.4
Miscellaneous	80	1668	7.9	20.8	Miscellaneous	84	2202	6.0	26.2
TOTAL	1097	21187	100.0	19.3	TOTAL	1604	35741	100.0	22.3

Table 2.2: Montreal's Industrial Sectors, 1871 and 1891

Source: See Table 2.1.

years to 11%. The boot and shoe industry maintained its lead in terms of employees, but the number of shoemakers dropped from 5,400 in 1881 to 3,700 in 1891. The clothing industry, which included tailoring, dressmaking and those employed in the fur and hat trades, accounted for nearly 20% of Montreal's industrial workforce in 1891. The food sector, due in part to the continued growth of old industries such as sugar and tobacco, and in part to the emergence of new ones like confectionery, grew rapidly between 1871 and 1891. Contrary to the growth of the food and clothing trades, the metallurgy sector remained stable over the period at about 12% of the industrial labour force. While the clothing, food, metallurgy and leather trades comprised a large proportion of the workforce, their share declined from 65.8% in 1871 to 59.1% in 1891. Over the twenty years Montreal's industry diversified.

A sector which increased dramatically was transportation. The Grand Trunk Railway shops in Point-Saint-Charles grew while the establishment of the Canadian Pacific Railway shops in the east end in the 1880s boosted the number of Montrealers working in the transportation sector from 491 in 1871 to over 3300 in 1891. Other sectors just entering on a phase of growth by 1891 were paper, chemicals, textiles and energy. Traditional Montreal sectors such as wood, printing, shipping and luxury (ie. silversmithing, jewellery work, etc.) all had

drops in their shares of the total workforce. The construction sector grew very slowly. Nonetheless, the construction, printing and wood sectors accounted for an important share of the total labour force.

The size of Montreal's establishments grew over the twenty-year period from an average of 19.3 employees in 1871 to 22.3 employees in 1891. The sectors with the largest establishments in 1871 were energy (72.0) and leather (42.6). Metallurgy's average increases from 24 to 44 if blacksmithing is taken out. At the other end of the scale, the luxury, chemical and transportation sectors were extremely small in size ranging from 6.3 to 8.3 employees per firm. While the size of Montreal's establishments rose slowly between 1871 and 1891 a number of sectors grew rapidly. The paper, textile and energy sectors all had a mean establishment size of more than 60 workers. Transportation shot up from 8.3 workers per establishment in 1871 to more than 44 workers in 1891 on account of the tremendous expansion of the railway industry. This tremendous growth occurred despite the small size of the carriage-making firms (12.7) and saddle and harness works (3.8). Metallurgy remained a large-scale industry, especially if blacksmithing is left out of the calculations. The luxury sector was the only one in 1891 which employed less than ten workers in each establishment.

The increasing average size of industrial capital

investment masks some significant differences between industries. A comparison between 1871 and 1891 is difficult because while the 1891 census supplied the amount of capital invested in each individual industry in Montreal, the 1871 census furnished only the amount of capital invested for each industry by province. On the assumption that capital investment in Montreal was representative of Quebec as a whole, I extrapolate from the provincial figures.[2] While this method provides a rough guide to the amount of capital invested in each industry in Montreal in 1871 it is not possible to compare the two dates for each industry. The 1871 figures are probable underestimates because industry in Montreal was far more capitalized than industry in the rest of Quebec. This method is at least a reasonable way to rank industrial sectors in terms of the size of capital.

As Table 2.3 indicates, there were some dramatic differences in capital investments in industry in Montreal in both 1871 and 1891. In 1871 the mean amount of capital invested ranged from $341 per establishment in plastering to $586,000 in the Montreal Gas Works, and in 1901 from $896 in dressmaking to $1,612,500 in sugar refining. In both years the highly capitalized industries were large-scale establishments with a large raw material component and a highly specialized division of labour. For example, the rubber factory in 1871 employed 370 workers and processed

1871

	INDUSTRY	A	B
MOST CAPITAL	Gas	586 080	72.0
	Rubber	341 423	370.0
	Sugar	191 269	169.0
	Straw	102 500	117.0
	Distillery	80 000	45.0
	Engines	61 297	113.0
	Lead Pipes	58 867	28.0
	Paper Collars	50 000	67.0
	Cotton Factory	50 000	123.0
	Flour Mills	47 811	20.8
	City	10 119	19.3
LEAST CAPITAL	Carriages	2 095	8.5
	Baking Powder	1 430	3.0
	Baskets	1 368	11.7
	Painters	1 345	5.2
	Harness and Saddles	1 321	4.9
	Carpenters and Joiners	1 310	10.2
	Cooperages	1 216	6.7
	Dressmaking	1 129	6.8
	Blacksmithing	641	3.3
	Plastering	341	4.8

A = capital per establishment
B = employees per establishment
C = capital in machinery and tools per establishment

Table 2.3.: The Most and Least Capitalized Industries in Montreal, 1871 and 1891

continued over page

1891

	INDUSTRY	A	B	C
MOST CAPITAL	Sugar	1 612 500	537.5	500 000
	Gas	1 100 000	140.0	320 000
	Agricultural Implements	665 000	20.0	3 000
	Rolling Stock	587 500	1260.5	117 500
	Flour Mills	582 800	57.8	78 800
	Rolling Mills	471 020	343.0	165 172
	Rubber	327 340	178.4	56 285
	Silk Mills	220 000	124.5	55 000
	Oil Cloth	178 000	98.0	5 000
	Breweries	170 312	40.9	27 688
	City	28 086	22.3	
LEAST CAPITAL	Mattrasses	9 250	2.5	100
	Bakeries	8 695	7.4	1 130
	Cooperages	8 455	9.6	360
	Musical Instruments	8 033	7.0	783
	Tin and Sheet Iron	6 639	10.0	1 286
	Harness and Saddles	3 092	3.8	2 052
	Tinsmithing	3 050	5.8	329
	Blacksmithing	2 015	2.7	468
	Brush and Brooms	1 570	5.2	206
	Dressmaking	896	4.6	104

Table 2.3.: The Most and Least Capitalized Industries in Montreal, 1871 and 1891 (continued)

Source: Census of Canada, 1870-71 Vol.3
Census of Canada, 1890-91 Vol.3

$300,000 of raw materials. The industries with a low capital input, on the other hand, were small in scale with a small raw material component. Many of them were old artisanal trades like coopering, blacksmithing and carriage-making, or construction trades which had traditionally been of small capital and scale. For example, in 1871 Montreal's ten cooperages together employed only 96 workers, with capital of $8,455 and raw materials of $6,248. As would be expected, those industries with large capital inputs and a large labour force had large amounts of their capital invested in machinery and tools. The sugar refineries, the rolling mills and the gas works were highly mechanized, while industries such as dressmaking, plastering and coopering were labour-intensive and primarily dependent upon hand labour and traditional skills.

Montreal's economy expanded greatly in the second half of the nineteenth century. It was characterized by a diversity of economic activity, scale, capital inputs and work places. Within and between individual sectors, and in some cases within trades, there was a polarity of the factors of production: large-scale, capital-intensive industry in contrast to small-scale labour-intensive industry. The diversity of Montreal's economy generated differentiated locational patterns among sectors and industries. We shall also see, in Chapter Three, that this diversity and the

formation of industrial districts were responsible for the organization of residential patterns in Montreal in the second half of the nineteenth century.

c Industrial Districts in Montreal, 1871-1900

The formation of industrial districts in Montreal was a process going back to the early nineteenth century. The original industrial cluster of the 1830s along the Lachine Canal expanded and intensified throughout the rest of the century, while the central core reached its greatest intensity by the 1880s. Thereafter its industrial establishments gave way to retailing, administrative and financial functions. Industrial firms moved from Old Montreal to adjacent areas. At the same time, growth of industry in Hochelaga, Maisonneuve and Sainte-Marie to the east, and in Saint-Henri and Sainte-Cunégonde to the west provided the nuclei for the formation of new industrial districts.

Back in 1871, however, industry was for the most part clustered in the city's central core and the adjacent areas in Sainte-Anne. As Table 2.4. shows, Old Montreal (Centre) had 363 (33.1%) of Montreal's establishments and 9,428 (44.5%) of Montreal's industrial workforce in 1871. Three industrial sectors account for more than 79% of all industrial workers in Old Montreal (See Table 2.5). The leather sector, which for the most part was composed of shoemaking firms, made up 12.7% of all establishments and employed 39.4% of all workers in Old

CENSUS DISTRICT	FIRMS NO.	FIRMS %	EMPLOYEES NO.	EMPLOYEES %	EMPLOYEES PER FIRM
West	447	40.7	74,93	35.4	16.8
Centre	363	33.1	9,428	44.5	26.0
East	287	26.2	4,266	20.1	14.9
TOTAL	1,097	100.0	21,187	100.0	19.3

West includes: Sainte-Anne ward
Saint-Antoine ward
Saint-Laurent ward

Centre includes: East ward
Centre ward
West ward

East includes: Saint-Louis ward
Saint-Jacques ward
Sainte-Marie ward

Table 2.4.: Montreal's Industry by Census District,1871

Source: Census of Canada,1870-1871, Vol.3, Tables 28-53,290-445

WEST			CENTRE			EAST		
SECTORS	NO.	%	SECTORS	NO.	%	SECTORS	NO.	%
Metallurgy	2032	27.1	Leather	3717	39.4	Food	1442	33.8
Clothing	942	12.6	Clothing	2660	28.2	Leather	1046	24.5
Construction	914	12.2	Printing	999	10.6	Construction	659	15.4
Wood	912	12.2	Metallurgy	342	3.6	Clothing	191	4.5
Leather	645	8.6	Wood	320	3.4	Wood	101	2.4
Food	632	8.5	Food	217	2.3	Transportation	76	1.8
Transportation	364	4.9	Luxury	185	2.0	Metallurgy	75	1.8
Shipbuilding	193	2.6	Construction	167	1.8	Chemicals	63	1.5
Textiles	162	2.2	Chemicals	82	0.9	Shipbuilding	11	0.3
Printing	96	1.3	Transportation	51	0.5	Luxury	4	0.1
Energy	72	1.0	Shipbuilding	6	0.1	Textiles	4	0.1
Chemicals	71	0.9	Textiles	3	0.1	Printing	-	-
Luxury	63	0.8	Energy	-	-	Energy	-	-
Miscellaneous	395	5.1	Miscellaneous	679	7.1	Miscellaneous	594	13.8
TOTAL	7493	100.0	TOTAL	9428	100.0	TOTAL	4266	100.0

Table 2.5.: Number of Employees in Industrial Sectors by Census Districts in Montreal, 1871

Source: See Table 2.4.

Montreal. More than one in four workers were employed in the clothing trades while one in ten worked in printing and ancillary firms. Old Montreal's share of the city's total labour force was 44.5% but it had a disproportionate share of the employees in a number of industrial sectors. In particular, clothing, printing, leather and luxury employees were concentrated in the central core. For example, in the printing trades all the workers in engraving firms, 676 of the 766 workers in the printing shops, and 137 of the 143 bookbindery employees were employed in firms operating in Old Montreal. Lastly, although Old Montreal had the highest employee/establishment ratio in the city, the figures are misleading because of the large size and dominance of the leather industry. The figure of 25.8 employees per establishment drops to only 18.0 when the leather workers are taken out. The shoe factories in Old Montreal employed on average nearly 81 workers each, which was extremely large for the time and produces a bias to Old Montreal's overall employee/establishment figure. A large number of firms like jewellery (5.9), chemicals (6.3), dressmaking (10.5) and cabinet and furniture (11.5), employed small numbers of workers. Old Montreal was, as Bellavance and Gronoff state, dominated by industries with long traditions in Montreal and was an area where the artisan shop existed alongside mechanization and modernization (1980, 376-80).

While Old Montreal was the important district for light industry such as clothing, printing and shoemaking, the adjacent area of Sainte-Anne was the centre of Montreal's heavy industry in 1871. The establishment of the Grand Trunk Railway shops in the 1850s and the utilization of the Lachine Canal provided the nucleus for the development of a heavily mechanized and capitalized industrial district. In 1871 Sainte-Anne was part of census district West, along with Saint-Antoine and Saint-Laurent. The great majority of the West's industrial firms and employees were in fact located in Sainte-Anne. Saint-Antoine was, with the exception of the southern part, mainly residential. Saint-Laurent, as Lamonde puts it:

> C'est le quartier des ateliers de coupe et de confection vestimentaires, des petits commerces de détail et l'axe urbain par excellence du divertissement commercial. (1982, 4a)

In 1871 the metal, clothing, construction and wood sectors were the four largest employers in the West. More than one in four were employed in the metal trades while about one in eight were employed in the clothing, construction and wood sectors. This area also had large concentrations of the city's employees in the textile, shipbuilding, metal, transportation and wood sectors. For example, 2,032 of the 2,449 metal workers in the city were employed in the West.

Most of them worked in the foundries, nail and tack factories, the brass works and the Grand Trunk Railway shops in Griffintown, Point-Saint-Charles, and along the Lachine Canal. Montreal's one textile factory and its one shipyard were also located in Sainte-Anne, as were 13 of the city's 22 cooperages. The employee/establishment ratio of 16.8 obscures some major differences between and within sectors. For instance, textiles had the highest ratio of 40.5 with metal at 34.4, wood at 15.7, transportation at 10.4 and luxury at 6.3. Within the sectors there were also differences of scale; in metal-working, nail and trade factories averaged 76 employees while blacksmithing averaged only 4.1; in the wood trades, sash, door and blind factories employed 31.7 workers each while cooperages only averaged 9.1.

A third, and the least important, industrial district in Montreal in 1871 was located in the eastern part of the city. This region composed of Saint-Louis, Saint-Jacques and Sainte-Marie wards accounted for a quarter of the establishments and a fifth of the industrial labour force in the city. Most of this industrial activity was concentrated in Sainte-Marie as Saint-Louis and Saint-Jacques were characterized by residential uses and artisan workshops (Hanna and Remiggi; 1980, 13-14; Lamonde, 1982, 49). Sainte-Marie was dominated by three industrial sectors, food, leather and construction. The food trades, employing primarily tobacco,

sugar and bakery workers, accounted for more than one in every three of the East's workers. The leather industry made up almost 25% of the eastern district's workforce; most of the workers were employed in the shoe industry but a substantial number worked in tanneries. An important share of the workers in the East were employed in the construction trades, especially in brick works, and stone and marble quarries. One in every five of the city's industrial workers was employed in the eastern section, but this district had a significant share of the workers in the food and construction sectors. For example, 967 of the city's 1,110 tobacco employees, 77 of the 147 brewery workers, and all of the city's brick and tile makers. The average size of the establishments at 14.9 employees per establishment, was the smallest in the city. This suggests that small-scale manufacturing, perhaps even artisanal work, characterized the East. This was undoubtedly true in such industries as saddle-making which averaged 4.4 employees per establishment, bakeries (4.8), blacksmithing (2.5), and tin and sheet iron working (4.7). Nonetheless, there existed large industries such as the rubber factory which employed 370 workers, tobacco making which averaged 193 workers, sugar with 119 workers and brick making with 51 workers.

B. Bradbury's doctoral thesis (1984) provides a case-study of Sainte-Anne and Saint-Jacques wards. These two

wards represent the two ends of the spectrum with respect to the economic activity in 1871. Sainte-Anne was characterized by a metal-based, capital-intensive economy, while Saint-Jacques was dominated by small-scale, labour-intensive firms.[3] Both wards were working-class districts but their populations worked in contrasting work environments. In Sainte-Anne people were likely to be employed in the metal and wood sectors in factories in their own ward. The Saint-Jacques population was employed in large tobacco, food and shoe factories, as well as in many small workshops. Workers travelled to other parts of the city to find work as the Saint-Jacques industrial base was relatively small.

In 1871 three distinctive districts contained the nuclei of Montreal's industrial structure. Each district provided employment for a large number of workers, and each was characterized by concentrations of different industrial activities. The diversity of the industrial structure was translated into spatial patterns. In 1871, industry was located in a thin band stretched along the Saint Laurent river with its major poles centered in Sainte-Anne, Old Montreal and Sainte-Marie. The defining elements of this locational pattern were the railway lines, the Lachine Canal, the waterfront, and the attractions of the central position of Old Montreal.

By 1901 this structure had changed very little. The

districts in Sainte-Anne and lower Saint-Antoine adjacent to the central core and along the Lachine Canal were still the primary industrial areas in the city. In the west- end and east end, small industrial areas were being developed. Old Montreal, however, had lost a great deal of its manufacturing importance.

In 1901 Sainte-Anne,[4] as Table 2.6. indicates, was by far the largest industrial district in the city with 282 establishments and its working population of 19,589. The area along the Canal and adjacent to the central core was the major industrial pole of the period. The greatest single magnet was the Grand Trunk Railway shops in Pointe Saint-Charles which employed around 2,000 people. Other large manufacturing firms were located in this area. These include Ives and Co. Foundry, Ogilvie Flour Mills, Canada Sugar Refinery, J.M. Fortier and Davis and Co. tobacco factories, Montreal Biscuit Company, and the nail works of Peck, Benny and Co., and Pillow, Hersey and Co. (de Bonville, 1975, 30-31). To the west of the Sainte-Anne concentration, along the canal and the railway line, was a small but growing industrial district in Saint-Henri and Sainte-Cunégonde. This district, which was an extension of the larger one in Sainte-Anne, was composed of industries dealing with foundry products, axe and tools, brass castings and iron and steel products as well as a large textile factory. Although, the number of industrial

	FIRMS	EMPLOYEES	CAPITAL	EMPLOYEES PER FIRM	CAPITAL PER FIRM
Sainte-Anne	282	19 589	28 643 257	69.5	100 934
Sainte-Marie	86	6 715	9 314 140	78.1	108 304
Saint-Antoine	130	5 752	5 759 556	44.2	44 297
Saint-Jacques	176	4 427	3 732 611	25.2	21 208
Saint-Laurent	195	4 293	4 610 152	22.0	23 642
Saint-Henri	24	3 664	4 303 362	152.7	179 307
Maisonneuve	12	2 729	4 147 533	227.4	345 628
Sainte-Cunegonde	10	1 917	2 967 009	191.7	297 601
Saint-Gabriel	9	417	1 828 043	46.3	203 116
Other[a]	67	2 825	3 766 901	42.2	56 222
TOTAL	991	52 328	68 900 564	52.8	69 526

a. includes remainder of Montreal, Hochelaga and Maisonneuve census districts

Table 2.6.: Industry in Montreal and Surrounding Districts, 1901

Source: Census of Canada, 1901 Vol.3 Tables 13,20-21,156-247,326-341

establishments in Saint-Henri and Sainte-Cunégonde only totalled 34, they employed a large number of workers: Sainte-Cunégonde's ten factories employed 1,917 workers, while Saint-Henri's twenty-four employed 3,664 for an average of 192 and 153 employees per establishment respectively.

The census districts of Saint-Antoine, Saint-Jacques and Saint-Laurent[5] each had a large number of establishments with a substantial workforce but the average firm size was relatively small. Most of the industrial activity in Sainte-Antoine took place in the southern part which was connected with Sainte-Anne. The centrally located wards of Saint-Laurent, Saint-Louis and Saint-Jacques were characterized by light industry such as clothing, boots and shoes, and food processing. The first two wards had large concentrations of clothing, jewellery, bread, aerated water and meat curing firms. Saint-Jacques specialized in boots and shoes, and fruit and vegetable canning. These four wards were, for the most part, residential areas with the exception of Saint-Antoine south, the southern section of Saint-Laurent and some small areas in Saint-Jacques.

In the eastern section of the city there was another heavy industrial district in Sainte-Marie, Hochelaga and Maisonneuve. Around the Canadian Pacific Railway shops in Hochelaga there developed metal-working industries; car repair shops, boiler and engine shops, an iron bridge works, an

agricultural implements factory, a factory making iron and steel products, and a railway supplies firm. It was on account of these that the firm size of Sainte-Marie (78 employees) and Maisonneuve (227) were high. This eastern district also had a variety of other industries such as boots and shoes, food processing and carriages.

For reasons mentioned above, Lovell's Business and Professional Directory of the Province of Quebec, 1902-03 was utilized to gain a more precise picture of the location of industry in Montreal at the turn of the century. Ten industries were chosen to represent the diversity of Montreal's industry at the time; old and new trades, producer and consumer industries, large and small firms, and, mechanized and non-mechanized firms. Figure 2.1. shows the major concentrations of these ten industries in 1902. With a few exceptions, industry was located in a band stretching from the east to the west along the waterfront, with definite centres in the western, centre and eastern parts of the city. Industry was still, to a large extent, clustered around the central core of Old Montreal. Jewellery, printing and tobacco were still highly centralized although a small concentration of jewellery establishments were located on the retailing street of Sainte-Catherine, and a cluster of tobacco firms is noticeable in Saint-Jacques and Sainte-Marie. Another centralized industry was clothing which clustered in the

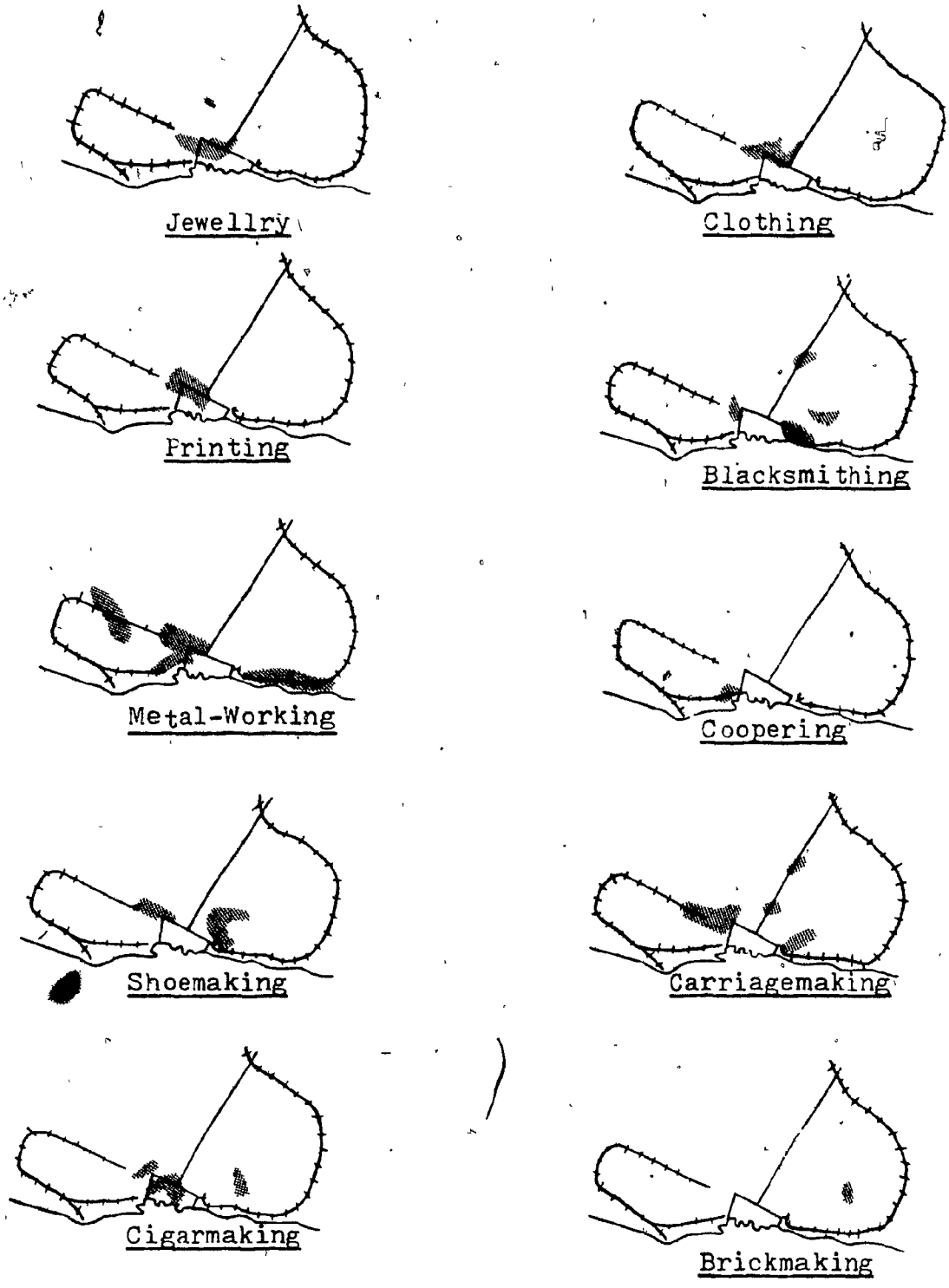
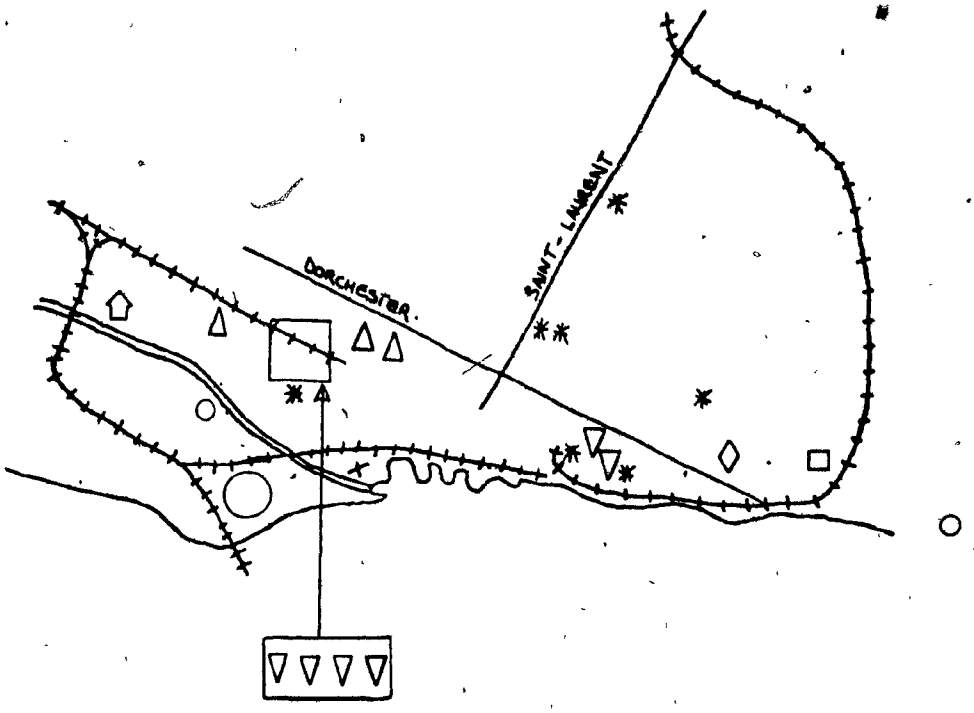


Figure 2.1: The Location of Ten Industries in Montreal,1902
Source: Lovell's Business and Professional Directory of the Province of Quebec, 1902-1903

districts adjacent to Old Montreal. Carriage making tended to locate on major arteries such as Saint-Laurent Boulevard and along the Grand Trunk Railway lines. Metal-related industry was heavily concentrated around the Lachine Canal and Griffintown. Two smaller clusters had sprung up in the west wedged between the Canal and the railway lines, and in the east around the Canadian Pacific Railway shops. Old artisanal trades like coopering and blacksmithing retained their earlier patterns: cooperages were tightly clustered in Sainte-Anne close to the waterfront and blacksmith's shops were dispersed throughout the city. Finally, not all industries were centrally located or dispersed. Brick and tile works, for example, were located on the periphery in northern Sainte-Marie so as to be close to the source of the raw materials from the quarries located in the vicinity.

An examination was also made of the location of the ten industries which were the most heavily capitalized in 1891. It would be expected that these industries would be located at a distance from the city centre and close to the railway terminals so as to minimize land costs and transportation costs. It was possible to locate nine of the ten industries. (It was impossible to disentangle the silk mills from other textile firms.) Figure 2.2. shows the location of the nine industries in 1902. As expected, most occupied a peripheral location or one close to either the Grand Trunk or Canadian



○ Sugar Refining
□ Gas Works
◇ Oil Cloth
▽ Rubber
△ Agricultral Implements
× Flour Milling
✱ Breweries
⌂ Rolling Mill
◯ Rolling Stock

Figure 2.2.: The Location of the Ten Most Capitalized Industries in Montreal at the End of the Century

Source: See Figure 2.1.

Pacific rail lines. For example, the rubber, the agricultural implements, and the rolling mill were localized near the railways. Sugar refining and flour milling tended to have a waterfront or Canal location. The only industry which did not locate close to the railway lines, the Lachine Canal or the waterfront was brewing. Although some breweries were attracted to transportation terminals or the waterfront, a number were dispersed throughout the northern sections of the city.

Conclusion

Throughout the nineteenth century, Montreal was the premier industrial city of Canada. From small beginnings in the early part of the century, Montreal's industry had by the end of the century reached large proportions. The small commercial city of the 1830s had seventy years later become a city with a population of more than quarter of a million, with a substantial industrial and financial base. Underlying this growth was the emergence of a large proletariat whose members were incresaingly becoming workers in large-scale factories. Although factories became larger over the period, the increasing scale was more pronounced in some sectors than among others. Workers in the energy, paper, textile, transportation, metal-working and food processing sectors in 1901 were more likely to work in large-scale firms than

luxury, clothing, wood, construction and chemical employees. Their growth was also linked to the rhythms of international economic cycles.

The evidence presented here shows that in the second half of the nineteenth century, Montreal had a distinctive economic structure which set it off from both the mercantile and the corporate city. The increasing differentiation of economic space gave rise to the emergence of specialized and centralized industrial districts. The rapid growth of Montreal coupled with the pedestrian character of the home and work relationship ensured that the city's residential patterns were strongly influenced by the location of work. Although Montreal's industry extended in an east-west belt in the southern part of the city along the railway lines and waterfront, three distinct industrial districts were visible. These three districts -- Sainte Anne, Old Montreal and Sainte-Marie -- were characterized by contrasts between them of the type of industry, scale, capital investments, and employment. It is within the context of the economic structure of the industrial city that the residential patterns of Montreal between 1861 and 1901 will be examined.

Notes

1. This section provides only a sketch of the development of Canada and Quebec throughout the nineteenth century. For a more detailed analysis see Ryerson (1973); Linteau et al. (1983); Easterbrook and Aitken (1965); Hamelin and Roby (1971); Pentland (1981).

2. The capital investments for each industry in Montreal in 1871 were obtained in the following manner:
   a) the number of employees in an industry in Montreal was taken as a percentage (A) of the total employees in that industry in Quebec;
   b) (A) was then multiplied by the total capital invested in that industry in Quebec to estimate (B), the capital invested in that industry in Montreal;
   c) (B) was divided by the number of establishments in that industry in Montreal to obtain (C), the average capital per firm.

   An example of this is given for the boot and shoe industry.

Montreal employees	5,175
Quebec employees	9,865
Montreal capital	$1,839,417
Montreal establishments	117

$$A = \frac{9\ 865}{5\ 175} = .525 \times 100 = 52.5\%$$

$$B = 52.5\% \times \$1\ 839\ 417 = \$965\ 694$$

Therefore, capital invested in each of Montreal's boot and shoe factories is:

$$C = \frac{\$965\ 694}{117} = \$8\ 254$$

3. In Sainte-Anne, 13 firms (7%) employed 54% of the ward's employees, and the average size was 28 workers. In Saint-Jacques, only 3 firms (2%) employed fifty or more workers, and the average size was ten workers (Bradbury, 1984, Chap.1.)

4. Sainte-Anne census district in 1901 included West and Centre Wards.

5. Saint-Jacques census district includes East ward while Saint-Laurent includes Saint-Louis.

CHAPTER THREE: CLASS RESIDENTIAL PATTERNS, 1861 AND 1901.

> 'The city above the hill' is the home of the classes. Within its well-built residences will be found the captains of the industry, the owners of real estate, and those who labour with the brain rather than the hand... 'The city below the hill', on the other hand, is the dwelling place of the masses. Here it is the rich man that one finds it difficult to discover. (Ames, 1972, 6)

The purpose of this chapter is to examine the character of Montreal residential patterns in 1861 and 1901. It explores residential differentiation and class segregation in the context of industrial development.[1] In Chapter Two it was shown that Montreal as early as the 1850s had a significant industrial base. By the 1870s industry had developed rapidly; it continued to do so for the rest of the century. The growth of industry in Montreal greatly influenced the development of the city's residential patterns. The formation of industrial districts established the framework in which class segregation would take place. It will be argued that as early as 1861 Montreal had class-based residential patterns which persisted in their basic form throughout the second half of the nineteenth century.

An Occupational Sample for Class Analysis.

For the most part this analysis of residential patterns is based upon occupational data obtained from the city water

tax rolls. Like other writers who have studied the nineteenth-century, city I have utilized occupational titles because they show, as Griffin and Griffin state, the "status of all members of a male labour force relative to each other more satisfactorily than any other single type evidence" (1978, 51). Thernstrom in his study of Newburyport, Massachusetts, considered occupation "only one variable in a comprenhensive theory of class, but it is the variable which includes more, which sets more limits on the other variables than any other criteria of status" (1964, 81). Occupation is one of the few variables which is readily available and even relatively complete in its coverage of households.

Despite the general consensus on the usefulness of occupation as a tool for examining social structure, a number of problems are apparent. They are both theoretical and practical. One is the relationship between class and occupation. An occupation is a phenemenon which operates in the market place and exists independently of class, which is a theoretical construct. Occupations can often be aggregated into class categories, but class is not reducible to occupation. There has been a tendency in empirical literature to use the terms occupational status and class interchangeably, without an adequate conceptualization of the relationship between the two. Many writers are not concerned with a class analysis, and even those like Thernstrom who

write about a "comprehensive theory of class" neglect to define the relationship between occupation and class. Analysts of class structure, whether they are looking at social or geographical mobility, residential patterns, should be sensitive to the way in which class is inferred from occupation. What is appropriate at one moment in history may not be appropriate or operational a generation later.

A practical problem with occupational data is that the major sources for the nineteenth century can be difficult to use in the context of class structure. Although census manuscripts, tax rolls, and city directories furnish occupational titles (usually self-designated), they do not provide information about each individual's relationship to the means of production. For example, we do not know whether a person labelled as a shoemaker is an assembly-line operator, an artisan in a workshop, a retail storeowner or a shoe manufacturer. This is particularly relevant to the middle of the nineteenth century when it is crucial to distinguish a factory worker from an artisan. The problem of inferring class position from occupational data can be highlighted with a few examples. In 1861 W.P. Johnston was listed in the tax rolls as "shoemaker", but his title in the city directory was "boots and shoes, wholesale and retail". He was a shoe merchant or manufacturer. The 1861 tax rolls listed Andrew Ferguson as a cooper, John Lovell as a printer and Henry

Samuels as a furrier, while the city directory listed them as an owner of a cooperage, a publisher, and a hat and cap manufacturer respectively.

Based on the discussion of class in Chapter One twenty-five occupations are used to represent six social classes. Some prior knowledge of a population is needed so as to create the homogeneous groups required for a stratified sample. This was obtained through background reading on the nineteenth-century social structure in Montreal and other cities in North America and Britain. A limited selection of occupations was preferred to the assignment of all occupations to categories because it is difficult to attribute a class position to many occupations without other data pertaining to an occupation's position to the relations of production.[2] An occupation was chosen on the grounds that it adequately met the requirements for assingment to one of the six social classes. The requirements were: for the bourgeoisie, control over capital; for the petite bourgeoisie, work in an autonomous workplace; for the working-class, the selling of its labour power in the market with differentiation by the degree of bargaining power in terms of skills.

The six social classes, and the twenty-five occupations that represent them, are shown in Table 3.1. The term 'social class' is used here to describe either a class, as in the bourgeoisie and the petite bourgeoisie, or a segment of the

	SOCIAL CLASS	OCCUPATION	1861 NO.	1901 NO.
i	Bourgeoisie	Merchants	526	934
		Manufacturers	14	293
ii	Petite Bourgeoisie	Lawyers	157	316
		Doctors	78	437
iii	White Collar Working Class	Agents	101	1605
		Salesmen	6	672
		Bookkeepers	83	245
		Clerks	435	2530
iv	Skilled Working Class	Jewellers	26	138
		Brassfinishers	10	49
		Foremen	21	557
		Engineers	81	590
		Printers	59	365
		Plumbers	37	436
		Saddlers	52	167
		Coopers	132	83
v	Semiskilled Working Class	Bookbinders	12	50
		Moulders	38	291
		Painters	162	972
		Carters.	743	1696
		Nailers	25	34
		Cigarmakers	1	260
		Shoemakers	629	1269
		Stonecutters	136	188
vi	Unskilled Working Class	Labourers	2007	9221
	Total Number in Six Social Classes		5571	23398
	Total Number in All Occupations		12566	52428

Table 3.1.: Montreal's Social Classes, 1861 and 1901

Source: compiled from water tax for 1861 and 1901.

working class. The bourgeoisie (i) is composed of merchants and manufacturers. Merchants who represent the commercial elite usually dealt in the import and export of commodities, although they might also be proprietors of a retailing establishment. Manufacturers represent the industrial bourgeoisie whose concern was with the production of commodities. Together these two occupations were largely responsible for the investment and circulation of capital in nineteenth-century Montreal. The petite bourgeoisie (ii) is represented by lawyers and doctors, although it is very heterogenous. Both these occupations were traditional professions which maintained their status and independence throughout the second half of the nineteenth century. Sandwiched between the bourgeoisie and the working class, lawyers and doctors worked in an autonomous workplace with skills and knowledge attained only through years of education.

Social classes iii, iv, v and vi are segments of the working class. Because of the differentiation by income, skill and job security among its different occupations, it was necessary to break the working class into four groups. The most important difference is between the white-collar (or non-manual) and the blue-collar (or manual) occupations. Bernier (1973, 35-42) has pointed to the variation between white-collar and blue-collar occupations in nineteenth-century Montreal in terms of income, job security and social status.

This is corroborated here. The white-collar social class (iii) is represented by agents, bookkeepers, travelling salesmen and clerks. Although there may have been much variety of acitivity within an occupation, especially agents and clerks, the group is qualitatively different from the rest of the working class.

The mechanism which differentiated individuals within the blue-collar working class was skill. The degree of skill found within any particular blue-collar occupation played a decisive role in the allocation of rewards. Those occupations which entailed a high degree of skill were more likely to command higher wages and to have greater job security. The blue-collar occupations were divided into three social classes based on their degree of skill: skilled, semiskilled and unskilled. The major problem with allocating occupation to category based on skill is that the degree of skill any one occupation possesses is susceptible to rapid changes taking place within the economy. The introduction of machinery into a sector resulted in the deterioration and deskilling of occupations. For example, Z. Lapierre, a boot and shoe manufacturer, told the Royal Commission on the Relations of Labour and Capital (referred to henceforth as the Royal Commission) in 1888, "skilled workmen are not required for most of our work ... [as it] is now done by machinery" (Vol.3, 437). The introduction of machinery also created a demand for

a number of new skilled occupations such as engineers and boilermakers. Evidence of deskilling was taken into account in the choice of occupations to represent the blue-collar working class.

The skilled working class (iv) is here represented by eight occupations covering a wide variety of work performed. It included traditional artisanal trades like coopers and saddlers who experienced a deterioration of their skills, printers and jewellers who maintained, to a large degree, many of their skills, and engineers, plumbers and foremen whose numbers were increasing throughout the second half of the nineteenth-century. The semiskilled working-class (v) is represented here by carters, painters, nailers, cigarmakers and stonecutters, all of which possesed minimal skills, and moulders, bookbinders and shoemakers whom experienced a rapid deskilling of their trade. The unskilled working-class (vi) is composed of only labourers. Labourers, by definition, generally lacked skills, and were regarded as interchangeable units of muscle power. They were also the most susceptible to seasonal and cyclical changes in the economy. They were often hired by the day or for the duration of a task, while skilled and even semiskilled, workers were more often employed by the week for indefinite terms.

The six social classes and the twenty-five occupations just discussed provide the framework for analysis of

Montreal's residential patterns in 1861 and 1901. We can now proceed to describe Montreal's occupational structure, its class segregation and its class residential composition.

Montreal's Occupational Structure, 1861 and 1901.

The city's occupational structure provides the context in which its economy can be understood. In this section, three aspects of Montreal's occupational structure will be assessed: the city's most common occupations; the occupational diversity of several wards; and the occupational characteristics of selected wards.

Beginning with Montreal's ten most common occupations it is possible to discern that between 1861 and 1901 they declined from 46.0% to 41.3% of the city's household heads (Table 3.2). The decline is due to the proliferation of job titles resulting from an increasing division of labour, and the 1881 figure of 42.3% is consistent with this interpretation. The top ten were remarkably similar in 1861 and 1901 even though the industrial and service sectors expanded rapidly throughout this period. Eight are the same; blacksmiths and carpenters had, by 1901, been replaced by agents and machinists. Despite the tremendous changes taking place in the urban economy the occupational structure remained stable in terms of the composition of the most important occupations. This stability suggests that major occupations

	1861			1901		
OCCUPATION	NO.	%	RANK	NO.	%	RANK
Labourers	2007	16.0	1	9221	17.6	1
Carters	743	5.9	2	1696	3.2	3
Shoemakers	629	5.0	3	1269	2.4	6
Merchants	526	4.2	4	934	1.8	8
Carpenters	469	3.7	5	512	1.0	14
Joiners	446	3.5	6	1681	3.2	4
Clerks	435	3.5	7	2530	4.8	2
Tailors	187	1.5	8	825	1.6	10
Blacksmiths	176	1.4	9	465	0.9	15
Painters	162	1.3	10	972	1.9	7
Agents	101	0.8	16	1605	3.1	5
Machinists	35	0.3	30	910	1.7	9
Ten Most Common Occupations	5780	46.0		21643	41.3	
All Occupations	12566	100.0		52428	100.0	

Table 3.2. : Montreal's Ten Most Common Occupations, 1861 and 1901

Source: compiled from water tax data for 1861 and 1901

in the mercantile city were still functional in the industrial city, and that many of the industries established by mid-century continued to be important.

The most prominent feature of Montreal's occupational structure was the overwhelming dominance of unskilled labourers.[3] Apparently machinery was not replacing sheer musclepower. The relative number of merchants declined, as would be expected in an economy undergoing a transformation from a commercial to an industrial city. Although merchants remained a numerically important occupation their percentage of the city's household heads dropped from 4.2% in 1861 to only 1.8% in 1901. The white-collar working-class occupations of clerks and agents nearly doubled (4.2% to 7.9%). The emergence of machinists among the top ten occupations reflects the expansion of the metal trades, while the disappearance of blacksmiths (still employed in many industrialized metal establishments) reflects the passing of an artisanal occupation. The importance of the construction industry is represented by the presence of carpenters, joiners and painters, the transportation sector by the carters. Tailors and shoemakers were producers of the most important manufactured consumption goods and the basis for exports from Montreal to the countryside. Despite the shift from craft to factory production, they remain among the top ten, although the percentage of shoemakers drops significantly after 1881.

It was suggested in the first chapter that the occupational composition of a neighborhood will vary according to the character of the economic activity taking place in or near the neighbourhood. For example, a neighbourhood with a large number of small economic establishments involved in a multitude of economic functions will have a diverse occupational structure. This is particularly so in the nineteenth century where the journey-to-work is restricted to walking by the absence of an affordable and extensive transportation network.

To gain some understanding of the occupational diversity of the wards in Montreal in 1861 and 1901, the ten largest occupations in each ward were accounted for and the corresponding percentages of household heads were calculated, as shown in Table 3.3. The differences are considerable, ranging from 34% to 59% of the wards' household heads in 1861, and from 32% to 57% in 1901. The central wards of Old Montreal, Saint-Laurent and Saint-Louis, had a diverse occupational structure while the peripheral wards of Sainte-Marie, Hochelaga, Sainte-Anne and Saint-Gabriel had large concentrations of the common occupations. The apparent diversity of the ward was also related to the proportion of labourers. As Table 3.3 shows, wards of occupational diversity had generally low proportions of labourers while wards where the ten most common occupations accounted for a

	1861			1901		
WARD	TEN COMMON OCCUPATIONS NO.	%	LAB-OURERS %	TEN COMMON OCCUPATIONS NO.	%	LAB-OURERS %
Sainte-Marie	833	59.0	28.3	4664	57.1	33.3
Hochelaga	-	-	-	1315	54.5	32.8
Saint-Gabriel	-	-	-	1671	48.3	25.1
Sainte-Anne	1362	51.3	26.8	2355	47.3	26.5
Saint-Jacques	972	50.1	14.0	3610	44.3	12.4
Saint-Denis	-	-	-	835	43.0	14.6
Saint-Antoine south	771	49.0	15.6	1771	41.6	18.6
Saint-Jean-Baptiste	-	-	-	2083	37.2	10.1
Saint-Antoine east and west	289	54.8	2.5	1308	37.0	0.7
Old Montreal	259	34.3	3.4	141	36.4	17.6
Saint-Louis	790	49.1	9.6	1751	35.3	8.2
Saint-Laurent	805	38.4	8.9	1456	31.9	5.9
CITY	5780	46.0	16.0	21643	41.3	17.6

Table 3.3.: The Number Accounted for by the Ten Most Common Occupations by Ward in Montreal, 1861 and 1901

Source: compiled from water tax data for 1861 and 1901.

large share of their population had high proportion of labourers.

Although Montreal's occupational structure was dominated by a small number of occupations, each ward had its own distinctive character. Table 3.4 indicates the ten most common occupations for three selective wards for 1861 and 1901. Each of the six wards had its own distinctive occupational composition.

In 1861, Old Montreal was dominated by bourgeois, petite bourgeois and white-collar occupations. Merchants, lawyers, clerks, doctors and agents account for over one fifth of the household heads. (They accounted for just over 10% of the city's household heads.) The central core also had significant numbers of skilled occupations such as jewellers, printers and tailors who were employed in centrally located industries. With the exception of Saint-Antoine east, Old Montreal was unique in having an exceptionally low percentage of its population employed as labourers. Sainte-Anne, on the other hand, had an extremely large proportion of labourers. It was also characterized by the metal-working trades of blacksmithing, engineering and boilermaking. Coopers clustered around cooperages lining the waterfront and railway terminals located in or near Sainte-Anne. The dominant feature in Saint-Jacques, besides the large numbers of labourers, was the importance of the construction trades:

1861

OLD MONTREAL	NO.	%	SAINTE-ANNE	NO.	%	SAINT-JACQUES	NO.	%
Merchants	62	8.2	Labourers	710	26.8	Labourers	272	14.0
Lawyers	38	5.0	Carters	142	5.4	Carters	198	10.2
Shoemakers	36	4.8	Carpenter	116	4.4	Joiners	127	6.5
Clerks	28	3.7	Shoemakers	85	3.2	Shoemakers	124	6.4
Labourers	26	3.4	Blacksmiths	68	2.6	Clerks	72	3.7
Doctors	20	2.6	Coopers	56	2.1	Stonecutters	46	2.4
Tailors	19	2.5	Clerks	55	2.1	Carpenters	38	2.0
Agents	13	1.7	Joiners	50	1.9	Merchants	33	1.7
Jewellers	9	1.2	Engineers	48	1.8	Masons	32	1.7
Printers	8	1.1	Boilermakers	32	1.2	Painters	30	1.5
Total of Ten Occupations	259	34.3		1362	51.3		972	50.1
Total of All Occupations	755	100.0		2654	100.0		1939	100.0

Table 3.4.: Ten Most Common Occupations in Selected Wards in Montreal, 1861 and 1901

continued next page

1901

SAINT-ANTOINE WEST	NO.	%	SAINTE-ANNE	NO.	%	SAINTE-MARIE WEST	NO.	%
Agents	172	10.0	Labourers	1320	26.5	Labourers	1916	33.3
Clerks	154	8.9	Carters	355	7.1	Shoemakers	330	5.7
Merchants	142	8.2	Machinists	148	3.0	Joiners	270	4.7
Doctors	48	2.8	Clerks	117	2.3	Clerks	202	3.5
Salesmen	48	2.8	Engineers	97	1.9	Carters	142	2.5
Manufacturers	43	2.5	Carpenters	78	1.6	Painters	124	2.2
Lawyers	42	2.4	Foremen	75	1.5	Machinists	116	2.0
Bookkeepers	19	1.1	Blacksmiths	63	1.3	Blacksmiths	60	1.0
Engineers	15	0.9	Moulders	56	1.1	Agents	53	0.9
Machinists	13	0.8	Joiners	46	0.9	Tailors	49	0.9
Total of Ten Occupations	696	40.3		2355	47.3		3262	56.6
Total of All Occupations	1726	100.0		4983	100.0		5759	100.0

Table 3.4.: Ten Most Common Occupations in Selected Wards in Montreal, 1861 and 1901 (continued)

Source: compiled from water tax data for 1861 and 1901.

joiners, stonecutters, masons and painters. Saint-Jacques had occupations from all social classes; merchants and clerks living alongside manual workers.

Sainte-Antoine west in 1901, somewhat resembles Old Montreal of 1861, by its concentration of bourgeois, petite bourgeois and white-collar occupations. Of the eight most common occupations, none were manual workers. It is not, however, a replication of Old Montreal in 1861. The "central" occupations are absent from Sainte-Antoine west, while the skilled metal trades (engineers and machinists) are present, as the ward was close to Sainte-Anne. Sainte-Anne itself has not changed much in structure since 1861. Labourers still account for more than one in four, and the metal trades (machinist, engineer and moulder) are still numerous. In Sainte-Marie west, one in every three of the ward's household heads are labourers, and all the common occupations are working class. There is a diversity in the working class, covering white collar (agents and clerks), construction (joiners and painters), metal (machinists and blacksmiths) and light consumer goods (shoemakers and tailors).

Working-class occupations exhibited elaborate differentiation when categorized by sector. In Figure 3.1., concentrations of five sectors are shown for 1861 and 1901. (The white-collar group are referred to here as a sector, although in the strict sense it is not a sector.) The shaded

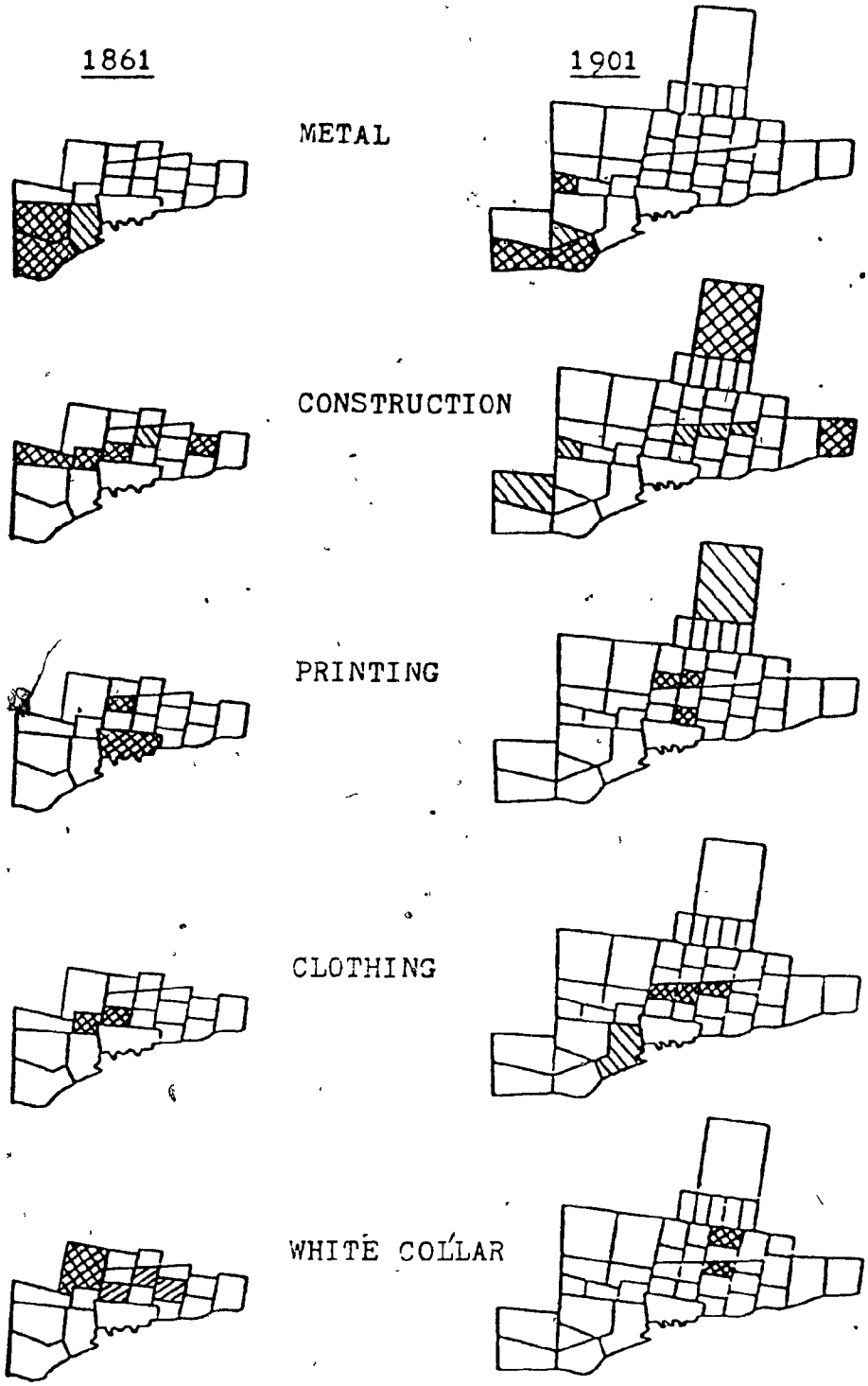


Figure 3.1.: Concentrations of employees in Five Selected Industrial Sectors in Montreal, 1861 and 1901

Source: compiled from water tax data for 1861 and 1901

districts indicate where the largest proportion of a sector are to be found. For each sector districts were ranked in descending order by proportion. Districts were included that account for half of the sector's population in the city. For example, the three shaded metal districts in 1861 accounted for 53.9% of all metal workers, while the ten shaded printing districts accounted for 50.7% of all printing workers.

Each of the five sectors was concentrated in a different part of the city. The metal sector was heavily clustered in the western section around Sainte-Anne, with small concentrations in the east and the north in 1901. The construction sector was more dispersed, with a tendency to locate on the periphery. The printing and clothing sectors were extremely centralized, although by 1901 there was movement of the printing workers to the new northern suburbs. The white-collar workers occupied much the same area as the printing sector, as well as the wealthy sections of Saint-Antoine.

The distribution of occupations and sectors provides a picture of the geographical and social structure of Montreal in the second half of the nineteenth century. The elaborate differentiation of occupations and sectors is rooted in the city's industrial structure with contrasts between large-scale industries and and smaller-scale light labour-intensive industries. Historical inertia contributes to the location

patterns of some industries such as clothing and metalworking. These features of industrial location produced residential concentrations of occupations and sectors in different parts of the city. The consequences include a contrast between specialized working-class districts, like Sainte-Anne, and diversified working-class districts with a more complete occupational profile, like Saint-Laurent. Although this section has given some clues as to the occupational character of the city, the residential relationship between classes has been ignored. The rest of the chapter deals with Montreal's class residential patterns in 1861 and 1901.

Class Residential Patterns in Montreal, 1861 and 1901

The most commonly used measure of class segregation is the index of dissimilarity. This index, which has been labelled with a large number of other names according to the variables it has measured, is simply a measure of differences between distributions (Taylor, 1979, 179-85; Duncan and Duncan, 1955). It ranges from zero where no segregation exists to one hundred where complete segregation exists. The formula is:

$$\frac{(\sum |X_i - Y_i|)}{2}$$

where X_i and Y_i are the percentages of each variable. The

index can be interpreted as the percentage of one group which would have to move in order to integrate it with a second group.

In this chapter, two variations of the index will be used. The first, here called the index of residential segregation, measures the degree of segregation, between a class and the rest of the population. The second, which I am calling an index of class segregation measures the degree of segregation between two classes.

There are a number of problems which have to be kept in mind when using such an index. Because spatial boundaries affect the results, comparisons cannot be made between values obtained from different carvings of space. Differences in the spatial scale of analysis result in systematic differences in the index values. With fewer base spatial units lower values are obtained. The index is insensitive to the arrangement of distributions among the spatial units. Nevertheless, it does provide an excellent measure of the relationship between classes. It should be kept in mind that the index is calculated here from the sample set of selected occupations, and its subtotals by class, not from the total population of households.

The index of residential segregation was calculated for each of the six social class categories and for each occupation in 1861 and 1901 (Table 3.5). There was great

	SOCIAL CLASS AND OCCUPATION	INDEX 1861	1901
i	Bourgeoisie	46	40
	Merchants	47	45
	Manufacturers	*	30
ii	Petite Bourgeoisie	41	41
	Lawyers	41	45
	Doctors	48	40
iii	White Collar	23	26
	Bookkeepers	34	47
	Salesmen	*	41
	Agents	46	37
	Clerks	22	20
iv	Skilled	17	13
	Brassfinishers	*	51
	Coopers	34	50
	Saddlers	30	38
	Jewellers	55	34
	Foremen	45	25
	Printers	38	25
	Engineers	44	22
	Plumbers	33	19
v	Semiskilled	18	20
	Nailers	61	64
	Stonecutters	50	50
	Bookbinders	50	43
	Cigarmakers	*	37
	Shoemakers	20	36
	Moulders	50	35
	Carters	26	25
	Painters	21	21
vi	Unskilled	24	29
	Labourers	24	29

* = insufficient number in occupation to obtain index of residential segregation.

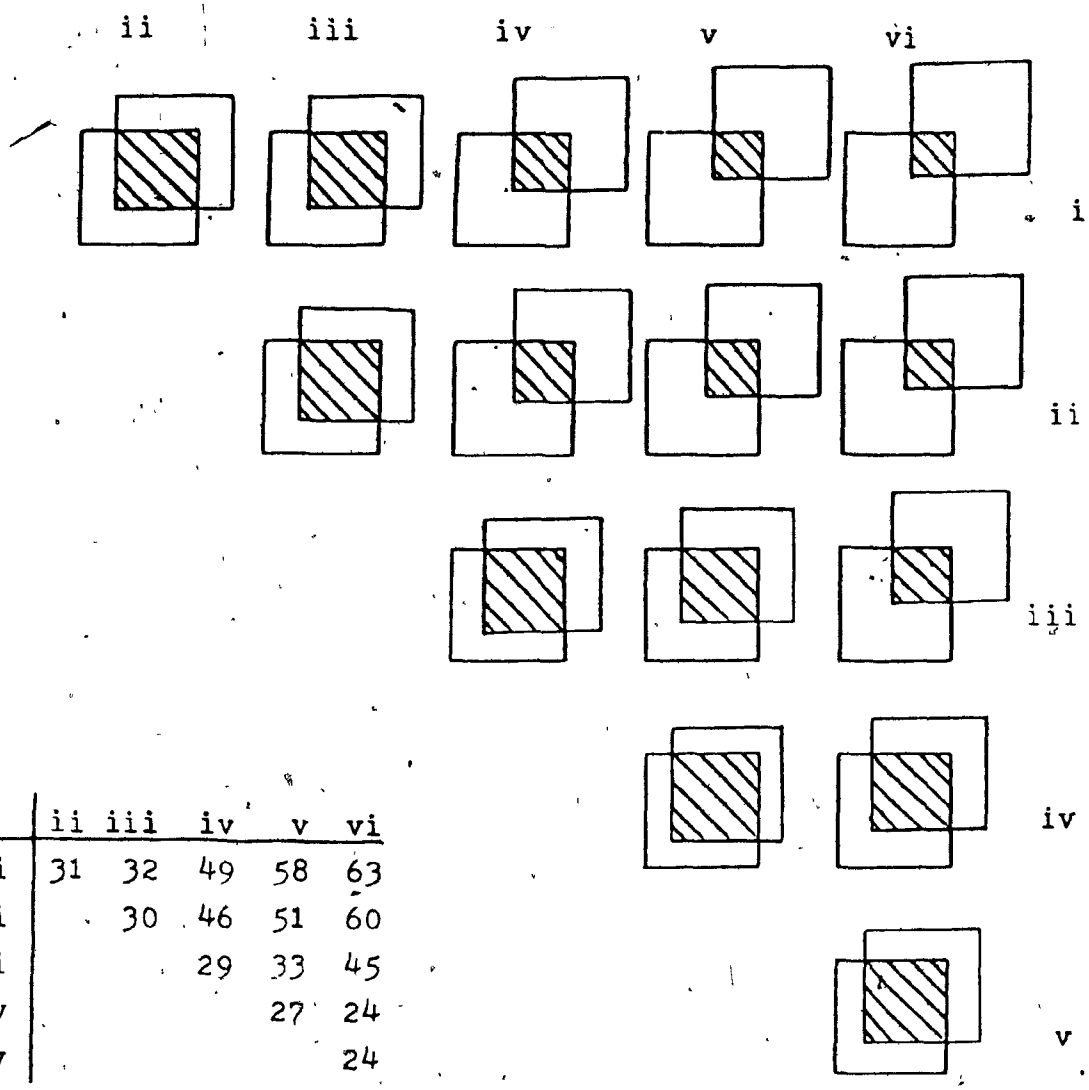
Table 3.5.: Index of Residential Segregation By Social Class in Montreal, 1861 and 1901

Source: compiled from water tax data for 1861 and 1901.

variation among the occupations making up a class with respect to their degree of segregation. For example, among white-collar workers (iii) in 1901 the index value ranged from 20 to 47, and among the semiskilled (v) in 1861 from 20 to 61. An individual occupation in most cases had a higher index value than the social class of which it was a part. An instance of this is in 1901 where the index value for the skilled (iv) was 13, but the lowest value for any of the selected skilled occupations was 19. This implies that, although the segregation of white-collar, skilled and semiskilled from the rest of the city's population was relatively small, many occupations were clustered in their own areas of the city, somewhat apart from other occupations of the same social class.

The index of residential segregation varied from one social class to another. In both years the bourgeoisie and the petite bourgeoisie were the most segregated (values range from 40 to 46). The four working-class fractions had much lower index values (ranging from 13 to 29). The working class in 1901, however, exhibited greater differences than in 1861. The index value for the unskilled increased, drawing away from the other working-class groups. The social classes at each end of the scale displayed the greatest segregation.

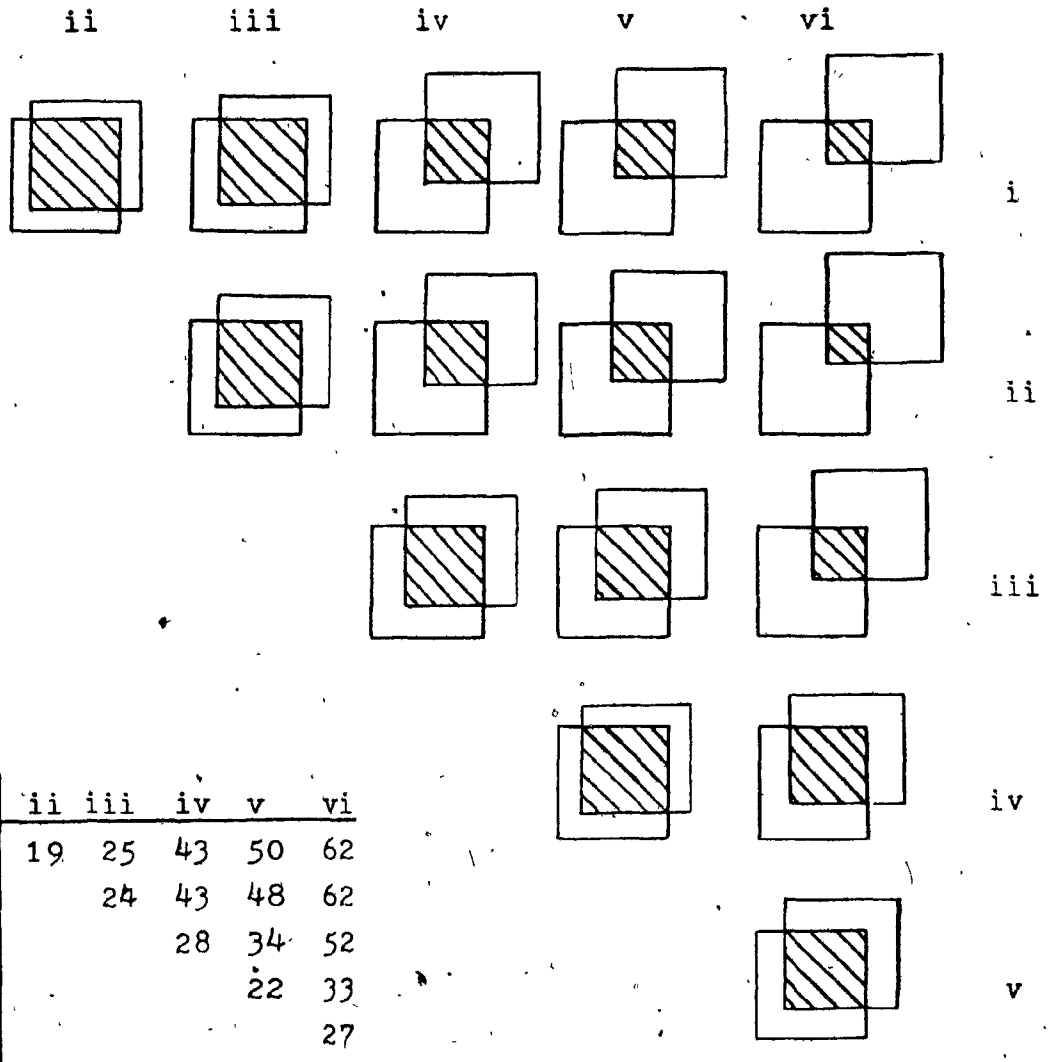
We need next to evaluate the degree of segregation between pairs of classes. The segregation between each class



	ii	iii	iv	v	vi
i	31	32	49	58	63
ii		30	46	51	60
iii			29	33	45
iv				27	24
v					24

Figure 3.2.: Index of Class Segregation in Montreal, 1861

Source: compiled from water tax data for 1861.



	ii	iii	iv	v	vi
i	19	25	43	50	62
ii		24	43	48	62
iii			28	34	52
iv				22	33
v					27

Figure 3.3.: Index of Class Segregation in Montreal, 1901

Source: compiled from water tax data for 1901.

category and the five others is presented in diagramatic and tabular form in Figures 3.2 and 3.3. The shaded box indicates the degree of overlap between a pair of social classes. The smaller the overlap, the higher the degree of segregation. In fact, the shaded area equals one hundred minus the index value and the unshaded equals the degree of segregation. For example, in 1861 the degree of segregation between the semiskilled and the unskilled is 24: therefore the lower right box consists of a shaded area of 76% (100-24) and an unshaded area of 24%. Each row of boxes represents the degree of segregation between one social class and the other social classes. For example, the top row in 1861 represents the segregation values between the bourgeoisie, and moving from left to right, the petite bourgeoisie, white collar, skilled, semiskilled and unskilled.

The figures show a consistent hierarchical property in the spatial structure. Those social classes which are more distant from each other in the social hierarchy exhibit a greater degree of segregation. For example, the bourgeoisie (top row in each figure) and the petite bourgeoisie (second row) were extremely segregated from the unskilled (on the right). The bourgeoisie and the petite bourgeoisie, on the other hand, lived in close contact with one another and with the white-collar workers. Each social class was less segregated from the social class on either side of it in the

social hierarchy than from other social classes. For example, the two social classes least segregated from the petite bourgeoisie (ii) were the bourgeoisie (i) and the white-collar working-class (iii). In summary, the bourgeoisie, the petite bourgeoisie and the white-collar social classes were more segregated from the manual working-class than from each other and vice versa.

A second important point, and somewhat surprising in the context of the literature on residential patterns, is that the several classes were already highly segregated by 1861. The bourgeoisie and the petite bourgeoisie remained highly segregated from the manual working class throughout the second half of the nineteenth century: the index values for separation between them remained very similar (ranging from 43 to 63). At the other end of the social hierarchy, the degrees of segregation between the three strata of the manual working class remained rather low. This structure did not change radically between 1861 and 1901. What changes in the structure is that the bourgeoisie, the petite bourgeoisie and white-collar workers consolidated their degree of residential integration. The segregation between them fell from 30-32 in 1861 to 19-25 in 1901. The trend can be interpreted as a shift of the relative position of the white-collar working class: in 1861 it was more segregated from the bourgeoisie and the petite bourgeoisie than from the skilled working class.

Forty years later, it had moved away from the other working class and closer to the bourgeoisie and the petite bourgeoisie.

The findings in this section raise two interesting issues. First the analysis of residential segregation suggests that occupation had a very important social meaning in the nineteenth-century city. The bourgeoisie and the petite bourgeoisie were highly segregated from the city's population. Many specific working-class occupations, also, displayed strong segregation. In one neighbourhood, to be working class is to be a shoemaker or a clerk, in another it is to be something else. Although many neighbourhoods had an intermingling of different working-class occupations, often from the same working-class segment, some occupations were clustered in a few neighbourhoods. All this raises an interesting issue with respect to the meaning of occupation and class segregation. Did the strong segregation of occupations like stonecutters or nailers affect their understanding of their class in contrast to occupations like printers or plumbers with lower segregation?

Second, the spatial segregation data suggest that the white-collar working class played a decisive role in the relationship between social and spatial structures. This is in contrast to the literature which argues that the skilled working class were the 'pivotal' segment in class structure.[4]

Obviously, before any concrete assessments can be drawn there is a need to pay more attention to this fraction of white-collar workers. Their numbers are increasing, and their degree of spatial segregation changes, and indicates a shift of position which does not correspond to their relation to the means of production. We need to know several things. What is their income relative to the rest of the working-class? Does education play a role in differentiating non-manual and manual workers? What are the consequences of the different forms of the reproduction of the working-class strata? Who is moving and where? What is the availability and cost of housing types? Although these questions are beyond the scope of this thesis any future work on the development of class segregation in nineteenth-century Montreal (and other cities?) must evalute the importance of the white-collar working class.

The Locations of Class Concentrations in Montreal, 1861 and 1901.

We have seen that there are decided differences in the occupational profiles of Montreal's wards, and that occupations and social classes were spatially segregated from an early date. The next step in relating these phenomena is to explore the class character of the various districts of the city. For this task the location quotient is a useful tool of analysis. The location quotient measures the degree to which

a group is concentrated in a district of the city. For example, what proportion of the labourers does one district have relative to its share of the population? From our set of occupations in six social classes we calculate the location quotient by the following formula:

$$\text{Location Quotient} = \frac{\frac{X_i}{\Sigma X_i}}{\frac{Y_i}{\Sigma Y_i}}$$

where X_i is the number of employees in the occupation in district i

where ΣX_i is the total number of employees in that occupation in the city

where Y_i is the total number of employees in all occupations in district i

where ΣY_i is the total number of employees in all occupations in the city.

The location quotient for a social class, the bourgeoisie, for example, is obtained by the addition of the number of all merchants and manufacturers and performing the same steps. A value below one indicates an under-representation of the bourgeoisie in a district, while a value above one indicates an over-representation. A value of 2.0, for example, means there are twice as many bourgeois households in a district than we would expect if merchants' and manufacturers' representation in a district was no different than its city-wide representation in the population. For the purposes

of this thesis, the meaningful threshold for location quotient values has been taken as above 1.50 and below 0.67. We shall look first at the class concentrations in the various wards of the city, and then, break the city into smaller districts for a finer grained differentiation.

Social class composition of wards varied. Some wards were dominated by one or two social classes, while others had average concentrations (close to 1.0) of all the social classes. Figure 3.4 sorts out the wards in diagramatic form by their location quotient for the six social class categories. Those wards with high concentration quotients for the bourgeoisie and the petite bourgeoisie are on the left, while wards with high location quotients for the manual working class are on the right. Those wards with little divergence from the city average are in the middle of the figure.

Whether we look at 1861 and 1901, we discover three types of wards. The first type, which consisted of Old Montreal and Saint-Antoine east and west, had an over-representation of the bourgeoisie, the petite bourgeoisie and the white-collar working class, and an under-representation of all segments of the manual working class. A second type --the inverse-- was characterized by high concentrations of the manual working class and low concentrations of the bourgeoisie, the petite bourgeoisie and white-collar workers; it was composed of

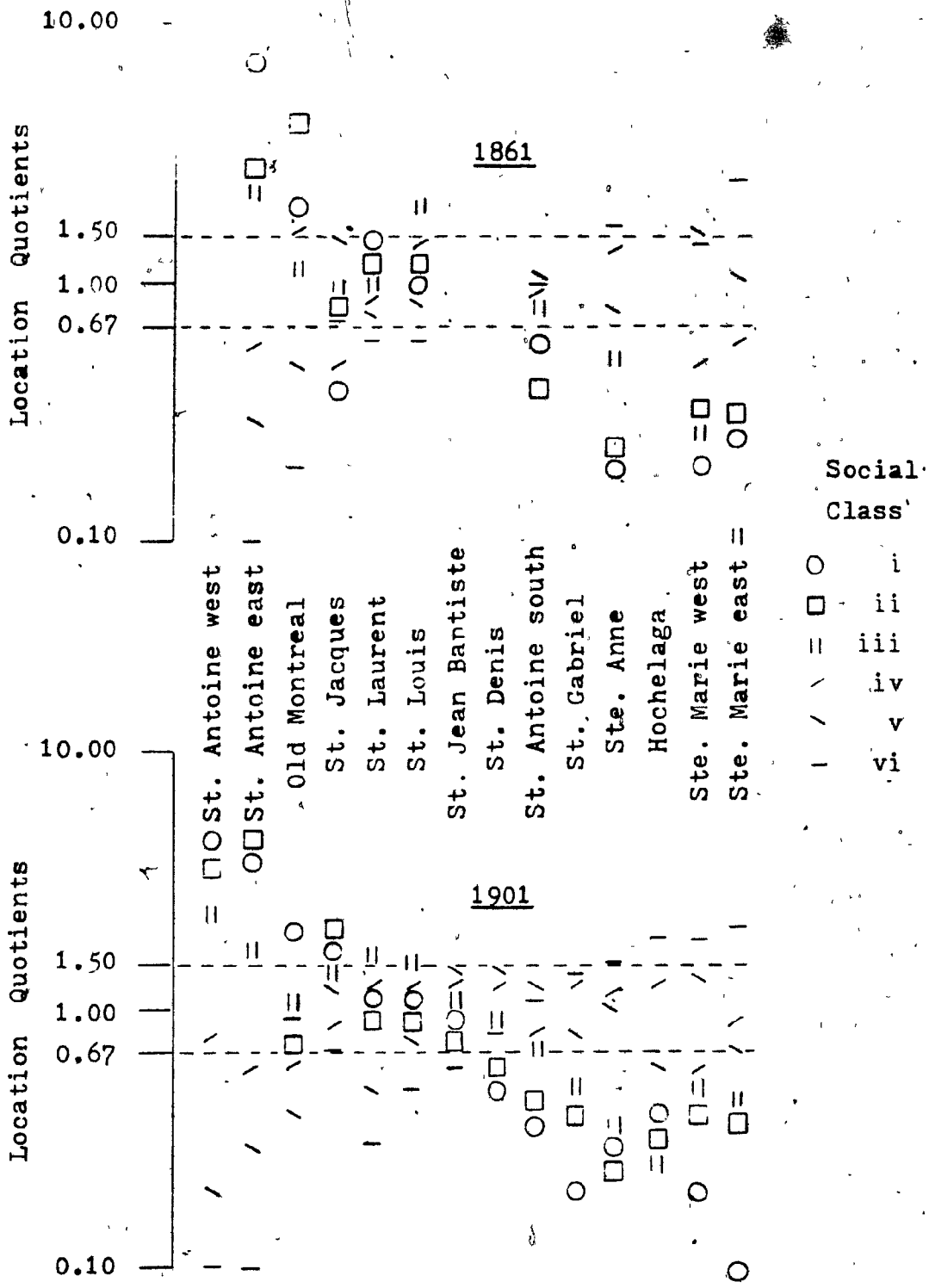


Figure 3.4.: Social Class Location Quotients by Ward in Montreal, 1861 and 1901

Source: compiled from water tax data for 1861 and 1901.

Sainte-Marie east and west, Hochelaga, Sainte-Anne and Saint-Gabriel. The third type had 'normal' concentrations of all six social classes, with little deviation from the city average and a small range of location quotients.

Over the forty year period there was little change in the structure of these types: the bourgeois, working class and homogenous wards maintained their basic character. The one exception was a shift in Saint-Jacques, which had a moderately high location quotient for semiskilled workers in 1861 but in 1901 had concentrations of the bourgeoisie, the petite bourgeoisie and the white-collar social class as well as the semiskilled.

The location quotient tells us there are class concentrations in nineteenth-century Montreal, but so far we have not examined the location of these concentrations in the city. We need to look at maps to see where these concentrations occur. To gain a more comprehensive picture of the city we need to go to finer-grained detail. By sectioning the city's wards, some of the homogenous type split into more specialized districts, while maintaining a meaningful representation of class segregation. The spatial extension of the city is enormous in this period: for 1861 we use nineteen districts, for 1901 forty-two. This will enable us to consider the social class character of newly built districts.[9]

Throughout the second half of the nineteenth century

residential space in Montreal was partitioned by class. As we would expect from the high index of segregation between certain classes, there was little overlap of class concentrations. In particular, the bourgeoisie, the petite bourgeoisie and the white-collar workers occupied different parts of the city from the manual working class (Figure 3.5). The manual working class resided in a vast but occupationally differentiated area.

At the extremes of the social scale there was a segregation of the social classes. The bourgeoisie and the petite bourgeoisie were over-represented in two parts of the city. One area, especially in 1861, with concentrations of these two social classes, was in Old Montreal and its adjacent districts. This was a vestige of the mercantile city's patterns. Even in 1901 a number of Montreal merchants and lawyers found it necessary to continue to live near their place of work in or near Old Montreal. In 1861, over 39% of the bourgeoisie and petite bourgeoisie lived in Old Montreal and the lower districts of Saint-Laurent and Saint-Louis, but more lived in the prestigious districts of Saint-Antoine and upper Saint-Laurent and Saint-Louis. In 1901 these districts contained over 42% of the bourgeoisie and almost 40% of the petite bourgeoisie while having less than 15% of the total number of household heads in the city. Connected to these districts was the mainly French-Canadian ward of Saint-Jacques

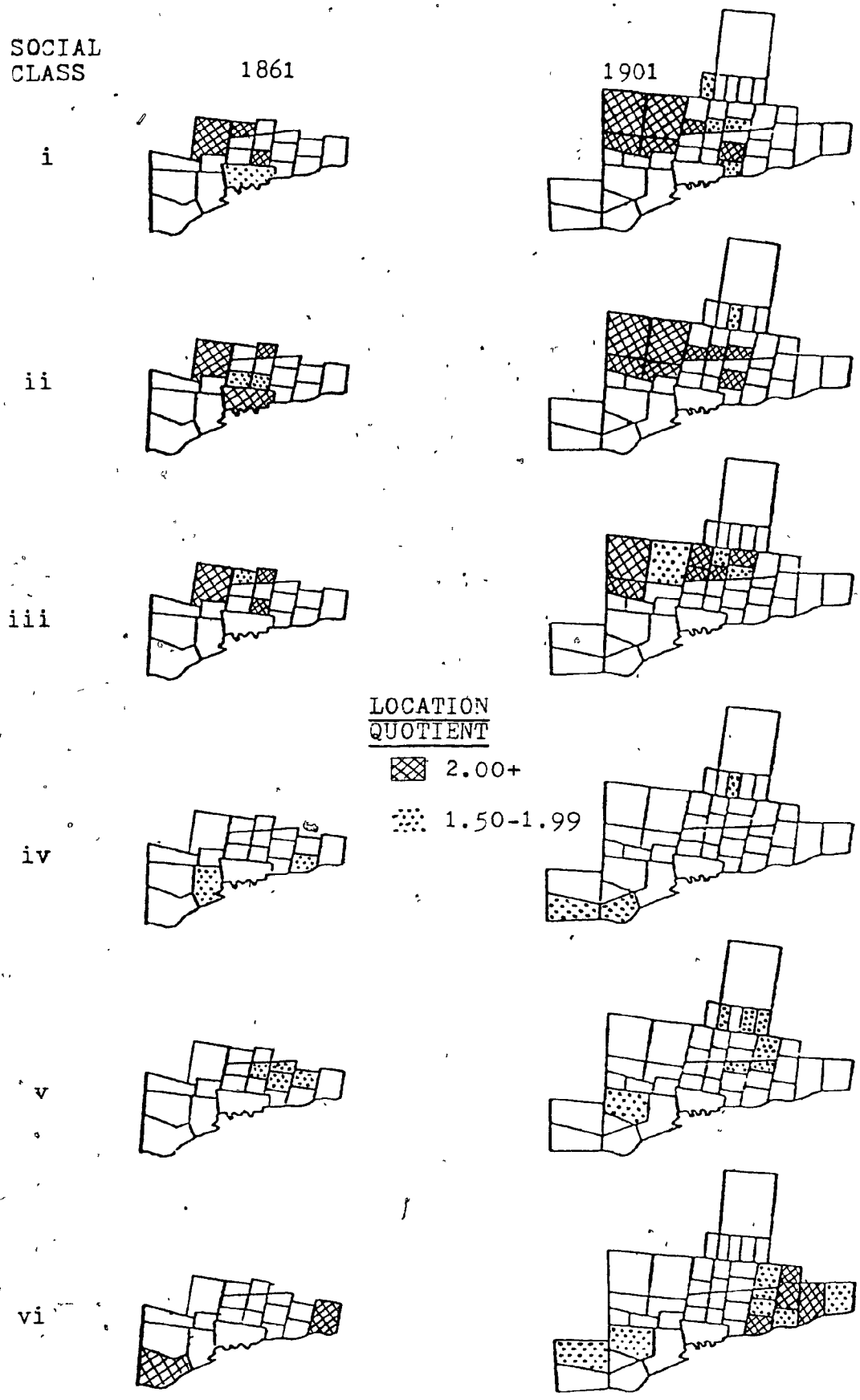


Figure 3.5.: Social Class Over-Representation by District in Montreal, 1861 and 1901

which had developed a substantial concentration of the bourgeoisie and the petite bourgeoisie.

The working class, with the exception of the white-collar workers, was concentrated in parts of the city distinct from the bourgeoisie and the petite bourgeoisie. The unskilled were over-represented in two parts of the city. In 1861, the primary area of unskilled over-representation was in the district along the Lachine Canal and adjacent to the early working-class area of Griffintown. The second concentration was located in the eastern district of Sainte-Marie. By 1901 these concentrations of the unskilled had expanded into Saint-Gabriel in the west, and Hochelaga in the east. These districts contained over 55% of the unskilled in 1901, but only 30% of the city's total households. The semiskilled, although they had concentrations in districts different from the unskilled, occupied the same areas of the city. The semiskilled in 1861 were over-represented in the eastern wards of Sainte-Marie and Saint-Jacques. Forty years later, this original concentration had extended into parts of Saint-Jean-Baptiste, and a small concentration was visible in the eastern districts of Sainte-Anne.

In the middle of the social hierarchy there are two interesting anomalies. First, the skilled working class was not heavily concentrated in any district. In 1861, they were moderately over-represented in two small areas: one near the

workshops of Old Montreal and the factories along the Lachine Canal; the other, close to the waterfront in Sainte-Marie. By 1901 the western concentration had spread, the eastern one had disappeared and another had emerged in Saint-Jean-Baptiste. Despite the low concentrations, the skilled lived in the same areas as the semiskilled and unskilled. Second, the white-collar workers were over-represented in practically the same districts as the bourgeoisie and the petite bourgeoisie. We saw earlier from the segregation indices that over the forty years the white-collar workers moved closer to a greater integration with the bourgeoisie and the petite bougeoisie. Here again, through the location quotient, we find that they tend to occupy the same territory as the city's elite. Like the bourgeoisie and the petite bourgeoisie, the white-collar workers were heavily concentrated in the wealthy districts of Sainte-Antoine, Saint-Laurent, Saint-Louis and Saint-Jacques.

Throughout the second half of the nineteenth century, Montreal was divided into two territorially separate sectors. The geographical split was largely, although not entirely, along class lines. The largest sector was composed of the mass of the working class and was differentiated along the lines of skill. The second sector consisted of the bourgeoisie, the petite bourgeoisie and the white-collar working class. The difference between the 'white-collar' and the 'blue-collar' in terms of class and spatial structure was

obviously great. The white-collar workers were well segregated from the rest of the working class, even from the skilled segment, and relatively well integrated with the elite. This reinforces the argument, stated in an earlier section, that the segmentation of the working class into manual and non-manual parts was a decisive element in the formation of inter- and intra-class perceptions and the ensuing fragmentation of the working class.

The segregation of the manual working class from the bourgeoisie, the petite bourgeoisie and the white-collar working class was the fundamental geographical feature of nineteenth-century Montreal. It is, we can see from the industrial structure and the occupational composition, generated by the structuring of the economy. With the exception of Old Montreal the manual working class area stretched unbroken from Saint-Gabriel in the west to Hochelaga in the east (Figure 3.6). It followed the length of the waterfront in the south and went as far north as the escarpment below the Dorchester street terrace, at about 30 meters above sea level. Saint-Antoine street at about 20 meters and Dorchester street divide lower and upper Montreal. The working-class area was differentiated into social class segments, and as the segregation indices indicate, by occupation. The bourgeois area of upper Montreal encircled the southern slopes of Mount-Royal. The bourgeois district

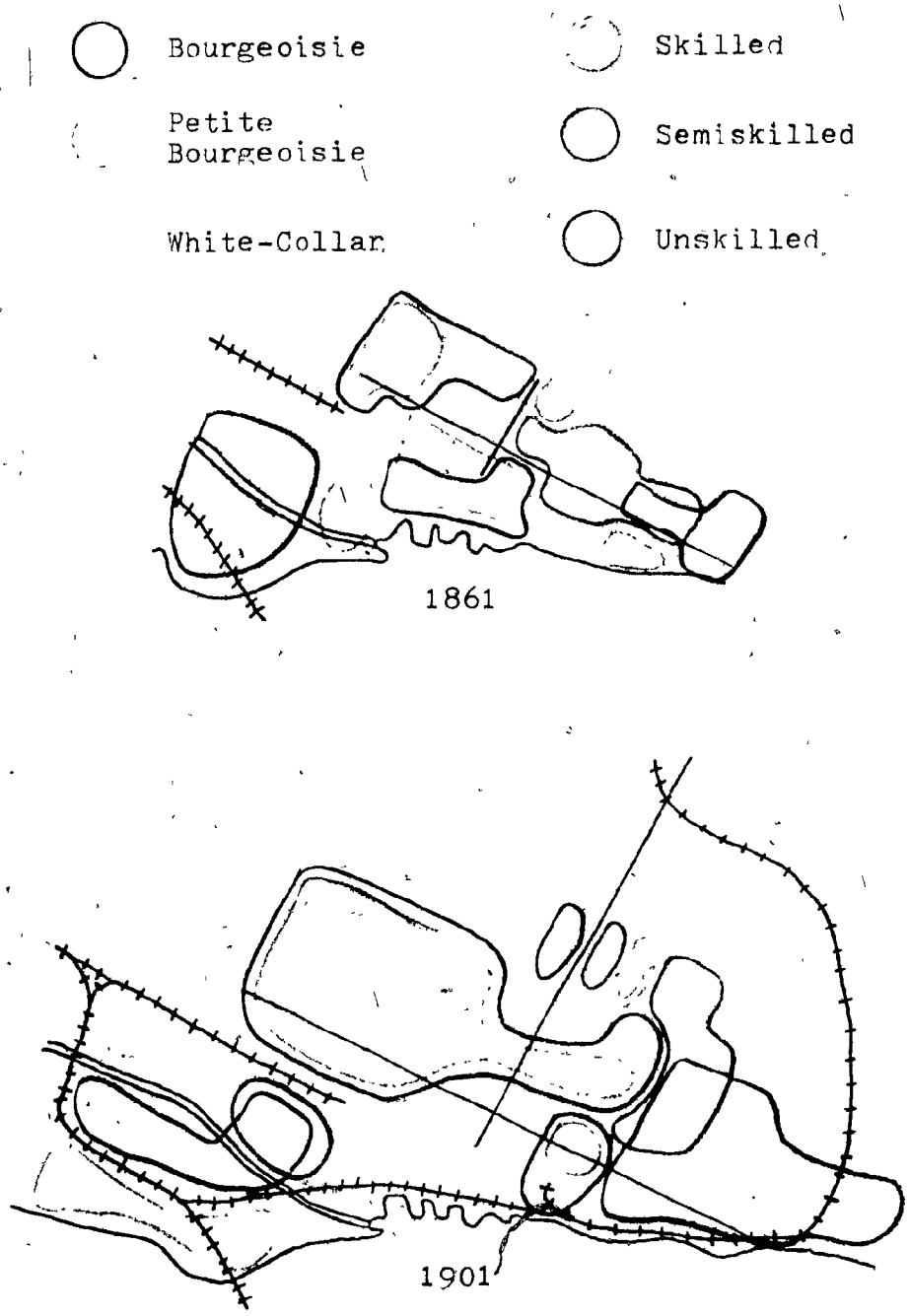


Figure 3.6.: Social Class Concentrations in Montreal, 1861 - 1901 (Districts with Location Quotients of 1.5 or More)

Source: compiled from water tax data for 1861 and 1901.

tended to be less divided by social class: the bourgeoisie, the petite bougeoisie and the white-collar working class were over-represented in many of the same districts.[5]

Conclusion

It was noted in Chapter One that the industrial city of the second half of the nineteenth century is seen by a number of writers as 'transitional' between the 'pre-industrial' and the 'modern' city. The pre-industrial city is characterized by an elite class residing in the central core with the labouring classes living in the surrounding districts. In contrast to the pre-industrial model, the modern industrial city is characterized by working-class occupation of the central area with a suburban 'middle class'. The transitional city is supposedly neither one nor the other, but a stage in the development of the western city from a non-industrial to an industrial economy.

There is little doubt that the form of the city changed radically between the middle and the end of the century. In 1847, Montreal's residential patterns were very similar to those suggested by Sjoberg (1960) for the pre-industrial city. Montreal was characterized by a centrally located bourgeoiosie and a peripherally located working class.[6] Interspersed with the merchants, lawyers and clerks were skilled artisans whose workshops were scattered through the central zone. By the end

of the century the most central district (Old Montreal) had, as the model of the industrial city suggests, been vacated by the bourgeoisie, who moved out to the suburbs, and was taken over by non-residential functions. The artisans were disappearing, and the areas adjacent to the core were occupied by the working class. The transitional model does not, however, adequately describe or explain Montreal's character in the second half of the century.

The findings in this chapter suggest that Montreal differs from the transitional model in a number of important ways. Two quite different methods of analysis have given very similar conclusions: the use of a segregation index and the use of a location quotient have independently revealed the same structure to the six categories of class. A consistent definition of class and a careful selection of occupations representative of the social classes result in very consistent findings.

Montreal's large working class is complex and has elaborate spatial differentiation throughout the second half of the nineteenth century. A large share of the manual working class was suburbanized by 1901, notably in the western districts of Saint-Gabriel and Sainte-Anne, and the eastern districts of Sainte-Marie and Hochelaga. The northern ward of Saint-Denis and parts of Saint-Jean-Baptiste also contained substantial numbers of the working class. As early

as the 1870s the formation of the industrial districts, which were stretched along the waterfront, generated working-class suburbanization.

Over the forty years there was a stable and substantial degree of segregation between the classes at the extremes of the social hierarchy. The spatial order apparent in 1901 was already in place by 1861. The enormous geographical expansion of all social classes made little change in the structure and extent of segregation and concentration. There was an overlapping of spatial territory, a sharing of space, between adjoining groups in the hierarchy. The spatial structure thus provides us with a 'map' of social structure. From the segregation of each social class from the whole, it is possible to infer a social structure, or social distance, between the classes. This social distance structure seems remarkably stable in view of the huge economic growth and extension of urban territory. Thus geographical patterns are rooted in the structure of the economy; they translate into social patterns and social distances.

Finally, there was a rather strong split emerging between the white-collar and the blue-collar working classes. The blue-collar workers were segregated from, and the white-collar workers integrated with, the bourgeoisie and the petite bourgeoisie. The white-collar workers, between 1861 and 1901, became more segregated from the rest of the working class.

This shift of spatial identification of the white-collar working class raises questions about the nature of its working-class allegiance and its self-perception as a class.

Notes

1. The terms residential differentiation and class segregation, are taken from Harris (1984a, 26-27). Residential differentiation refers to the class composition of different areas of the city, while class segregation refers to how classes differ with respect to residential distributions within the city.

2. The methodology employed here differs fundamentally from Griffin and Griffin (1978), Katz (1972, 1975), Ward (1980) and others. The emphasis here was on the construction of consistent and viable social class categories within the limitations of our knowledge of work relations in the nineteenth-century Canadian city. While my use of occupations to typify each social class is similar to Katz (1972) and a number of other writers, there are some fundamental points of difference. The social class hierarchy created here is theoretically founded on a set of occupations for which we can specify a relation to the means of production as well as (in the case of the working class) a relative status. For that reason it is a restricted hierarchy: it requires dropping from consideration those occupations which are ambiguous in terms of class or status, and including those which meet the theoretical criteria. I do not, therefore, use all the same occupations, nor do I locate them in quite the same categories as other writers. The choice of occupations was adapted to nineteenth-century Montreal, but would be appropriate for a number of cities in Eastern North America.

3. The 1861 and 1881 Canadian occupational censuses gave labourers as second in number to servants. As the tax rolls give only the occupations of head of households, servants were small in number: most lived at their place of work, and a large number were female who were not usually heads of households. Except for the discrepancy with respect to servants, the principal occupations obtained from the censuses are much the same as for the tax rolls.

4. For example, see Gray (1976)

5. In this thesis I do not deal with ethnic segregation, even though I recognize that it existed, and was intimately linked to occupation and class. For a description of the role of ethnicity in Montreal see Bellavance and Gronoff (1980), Ames (1972), Thach (1984), and Kestleman (1983).

6. The information pertaining to Montreal's residential patterns in 1847 comes from the same sources (tax rolls) and data bank (funded by a FCAC grant under the supervision of Professor S.

Olson), but is limited to counts, and not analysed to the same extent.

CHAPTER FOUR: HOUSEHOLD RENTS IN MONTREAL, 1861 - 1901.

> It seemed to him that the "For Rent" sign should be attached not only to the houses. It should be worn by the men and women of the quarter too. Their hands were for rent. Their empty days were for rent. Their strength was for rent. (Roy, 1969, 29)

Introduction

G. Roy's description of the slums of Saint-Henri provides an insight into the overwhelming poverty that many Montrealers had to live with during World War II. In her description of the streets of Saint-Henri and the people who live in them, we catch a glimpse of the devastation generated by the inequalities inherent in capitalism. What is particularly compelling about Roy's novel is the connection she makes between the working class and their housing. It was in the dilapidated, filthy and run-down houses that families like the Lacasse family attempted to maintain some control over their lives. They had, however, as little control over their housing as over their lives. The working class had to take what they could get, and for a large number the choices were limited. The plight of the Lacasse family was not unique to Saint-Henri families. The same problems occurred throughout other parts of Montreal, in sections of Saint-Jacques, along the 'Main', and all through the east end. The situation

confronting the Lacasse family and others was not a new one, one that emerged out of the Great Depression. Its roots go much further back into the city's history. The Board of Inquiry into the Cost of Living in 1913 noted that:

> Housing conditions [in Montreal] have degenerated and there is a decided lack of workingman's dwellings with proper conveniences at low rental. Rents have increased by fifty per cent in the last seven years leading to a doubling up of families in the same apartment or house causing overcrowding and ill health (quoted in Copp, 1974, 70).

Twenty-five years earlier William Costigan told the Royal Commission into the Relations between Capital and Labour that, "many of the homes they [the working class] occupy are scarcely fit for human beings to live in, and their surroundings are equally deplorable" (1888, Vol.3., 732). In 1878 La Minerve pointed out that

> les loyers augmentent cette année et an conséquence un grand nombre de pauvres vont se retirer en dehors des limites de la ville (quoted in Choko, 1980, 15).

Throughout the second half of the nineteenth century, as well as before, a large share of Montreal's housing was characterized by high rents, insalubrious conditions and over crowding (Choko, 1980, 5-61; Copp, 1974, 70-105; Ames, 1972).

The purpose of this chapter is to examine the essential features of Montreal's rent structure between 1861 and 1901. In particular, the focus will be upon the salient elements of

the occupational, class and spatial distribution. I will show that the class structure apparent in Montreal in this period, as shown by the class residential patterns in chapter three, had strong parallels in the rent structure. It will be assumed here that rents are a reflection of living standards. Studies of living standards generally use income data as the analytical source. It will be argued here that in the absence of income data for the nineteenth century, rents are a good surrogate for income.

Rental districts are constructed for 1861, 1881 and 1901 utilizing rent data for every household obtained from the city's water tax rolls. These data, however, suffer from a number of limitations. There are many aspects of Montreal's rents that the data do not reveal. The problem of double households creates some difficulty in assessing the rent that any one household (or family) paid. The city assessors were concerned with only the rent that was paid for a dwelling, not with the number of households living in a dwelling. It is extremely difficult, if not impossible without detailed searching among census manuscripts, to estimate the degree of doubling up in houses. Another problem is the possible one of bias in the rents of owner-occupied and high-rent dwellings. The city enumerators assessed the rent of owner-occupied dwellings on the basis of space. As homeownership was increasingly restricted to the wealthy, (Hertzog, 1984) it was

probably not uncommon for a number of high-rent dwellings to be under-assessed. Again, it is very difficult to confirm this, although Hertzog argues that under-assessment appears to have been random and infrequent (1984, 62-63). A third problem is that we know very little about the sizes of dwellings. Did households paying low rent pay the same rent/volume ratio as the high-rent-paying households? The tax rolls do not tell us directly. A very small sample, correlating dwelling rents and sizes, suggests this was so, that is, low-rent households paid the same number of dollars per square foot of floor area as high-rent households. Any conclusive statement will, however, have to wait upon findings from a systematic study of housing space and rent. Despite these disclaimers, the household rents obtained from the tax rolls provide a viable and systematic source for an analysis of Montreal's rent structure between 1861 and 1901.

Few studies of North American cities have employed rental data in any systematic way. This is partly because of the difficulty of obtaining complete coverage even for one city, but also because of the concern with other indices such as education and income. One of the earliest exceptions was Hoyt's study of a number of American cities in which he concluded that there was a "wide variation in size, shape and location of the rental areas in the different cities" (1939, 74-75). A study of the Philadelphia Metropolitain District in

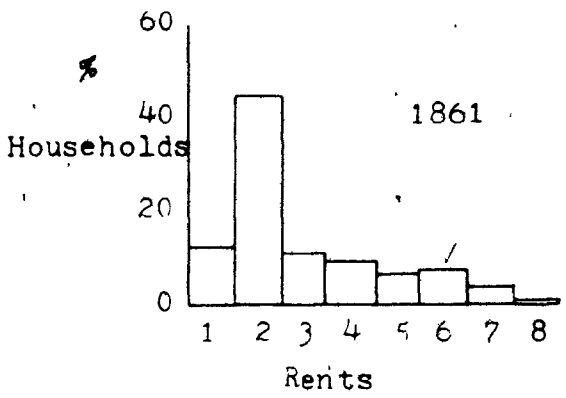
1940 found that rental values increased up to ten miles from the city centre and then decreased, with a strong relationship between rent and altitude (Blumenfeld, 1948). In a study of Chicago in 1956 Duncan and Hauser compared rent and income for over 400,000 lower-income households. They found that households paying lower rents had, on the average, lower incomes, and that for any income level the average rent increased as income increased (1960, 141-67). They also found, however, that households in any given income group pay a wide range of rents. Mathews has shown for Montreal in 1971 that the higher the income the larger the rent, but the low-income households pay a larger share of their income on rent (1980, 54-56). Hanna and Olson (1983) in their study of all household rent in Montreal between 1881 and 1901 found that there was a rent segregation by street and a rent differential by occupation. Building on the work of Hanna and Olson (1983) this chapter will outline the partitioning of space by rent and class in Montreal in the second half of the nineteenth century.

Before presenting the results of the empirical study a short discussion of 'rents' is needed. Housing rent is the amount paid to property owners by tenants for the use of dwelling space, the land it occupies and the financing. Rent is a reflection of the allocation of resources in society. In the case of dwelling space, rent is a mechanism in which the

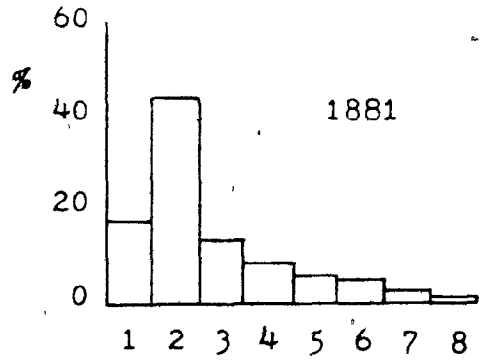
commodity is parcelled out among households. Access to dwelling space, or housing, is limited by the ability to pay rent which in turn is controlled primarily by wages. Rent is dependent upon such factors as the quality of the dwelling unit, the quality of the neighbourhood, the value of land for other uses (such as commercial), and demand and supply for rents of similar quality and location. Differential rents function within urban housing markets which may provide differential access to households according to other criteria such as class, ethnicity and religion (Bourne, 1981, Chap. 4).

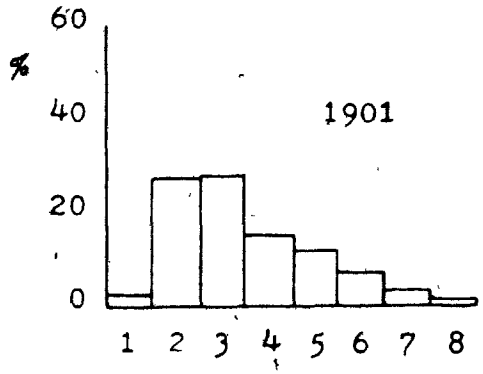
Montreal's Rent Structure, 1861 - 1901

A short description of the general distribution of rents in Montreal between 1861 and 1901 will provide a framework in which occupation and class can later be discussed. In Figure 4.1. the distribution and quartiles of Montreal's household rents in 1861, 1881 and 1901 are shown.[1] These three rent distributions, similar in shape and positively skewed, indicate the wide range and predominance of rents at the lower end of the scale. In 1901 rents ranged from $10 to $3 000 while the median was $80.[2] In all three years the vast majority of households paid rents of less than $90. In 1861, 1881 and 1901 it was 71%, 75% and 60% respectively. Despite the great changes in the city's economic and social structures



$	Q_1	Q_2	Q_3
1861	38	55	104
1881	36	53	91
1901	54	80	120





Rent Categories

1. $ 0 - 30
2. 31 - 60
3. 61 - 90
4. 91 - 120
5. 121 - 180
6. 181 - 300
7. 301 - 540
8. 541+

Figure 4.1.: Montreal's Household Rents, 1861-1901

Source: compiled from water tax data for 1861, 1881 and 1901.

in this period, its rent distribution remained untransformed. The distribution of rents in Montreal was highly unequal in that most households paid low rents, a few paid much higher rents.

Although the structural features remained very similar between 1861 and 1901, the median value rose from $55 in 1861 to $80 in 1901. This change was not, however, a continuous trend throughout the period. In 1861 and 1881 the median rents were almost identical ($55 and $53 respectively). There is reason to believe, however, that it did vary from year to year. The land boom of the 1870s played havoc with property prices and rents. George Muir, city assessor, told the Royal Commission into the Relations between Labour and Capital that there was in the early 1870s "an unfortunate boom in property... which sent property to a tremendous high price" but which, in the late 1870s "went down just as much as it had gone up. Rents commenced to fall before property declined" (1888, Vol.3., 263). In the same way, we might suspect that property values and rents fluctuated later in the century, especially in the boom of the late 1880s and the early 1890s. Despite the fluctuations, the general trend of rents in the twenty years after 1881 was upwards, reaching a 1901 median of $80.

The distribution of the city's rents in 1861, 1881 and 1901 displayed some marked differences. In 1861 the variance

measured in terms of the interquartile range was substantially greater than in 1881. As Figure 4.1. indicates, although the lower quartiles in 1861 and 1881 were similar, there was a large difference in the upper quartiles. In 1881 rents were bunched closer to the median than in 1861. In 1861 the high rental values in Old Montreal skewed the upper quartile, but they had dramatically declined by 1881. If we exclude Old Montreal, there is a tremendous drop in the value of the 1861 upper quartile (from $104 to $95), but little or no change in the other quartiles nor in other years. The exclusion of any other ward did not have the same effect. The decline in Old Montreal was related to the suburbanization of the bourgeoisie and the petite bourgeoisie and the demise of the artisan workshop. In 1861 nearly one in five of the city's merchants, manufacturers, lawyers and doctors lived in Old Montreal and, in many cases, combined their places of residence and work. By 1901 this figure had fallen to one in a hundred, as the wealthy districts of Saint-Antoine, Saint-Laurent, Saint-Louis and Saint-Jacques became the home of the bourgeoise and the petite bourgeoisie. Households rents dropped as the rich moved out of Old Montreal and their homes were destroyed or taken over by commercial activities. In 1861 many workshops were located in Old Montreal, but with the continuing proletarianization of many trades, rising land values, and the pressure of commercial activities upon central land use, most

workshops either went out of business or moved to other parts of the city.

Even though the city's median rent increased between 1861 and 1901 there seems to have been a tendency towards an 'equalization' of rents over the period. The Lorenz curve, as shown in Figure 4.2., suggests a slight equalization as the rents for 1861, 1881 and 1901 moved progressively closer to the equality line.[3] The index of dissiliarity confirms this. It became smaller over the forty years, especially between 1881 and 1901. Likewise, Figure 4.2. shows that the top 50% of the city's households paid over 80% of the city's total rental value in 1861 but only 76% in 1901. More significantly, the top 10% paid 39.3% in 1861 and only 30.1% in 1901. At the other end of the scale, the bottom 10% of Montreal's households paid only 2.1% of the total rental value in 1861 and 3.4% in 1901. What these tendencies suggest, and as will be shown in a later section of this chapter, is that the burden of the increase in the rent values fell upon the mass of the working class.

Spatial Patterns of Montreal's Rents, 1861 and 1901

This section will examine two prominent features of the spatial distribution of household rents. They are first, the dramatic differentiation among the wards and districts and second, the

Households	Percentage of Total Rental Value		
	1861	1881	1901
Top 10%	39.3	40.0	30.1
Top 25%	62.6	61.2	55.7
Top 50%	80.4	79.0	76.0
Top 75%	91.9	92.1	90.7
Top 90%	97.9	97.7	96.6

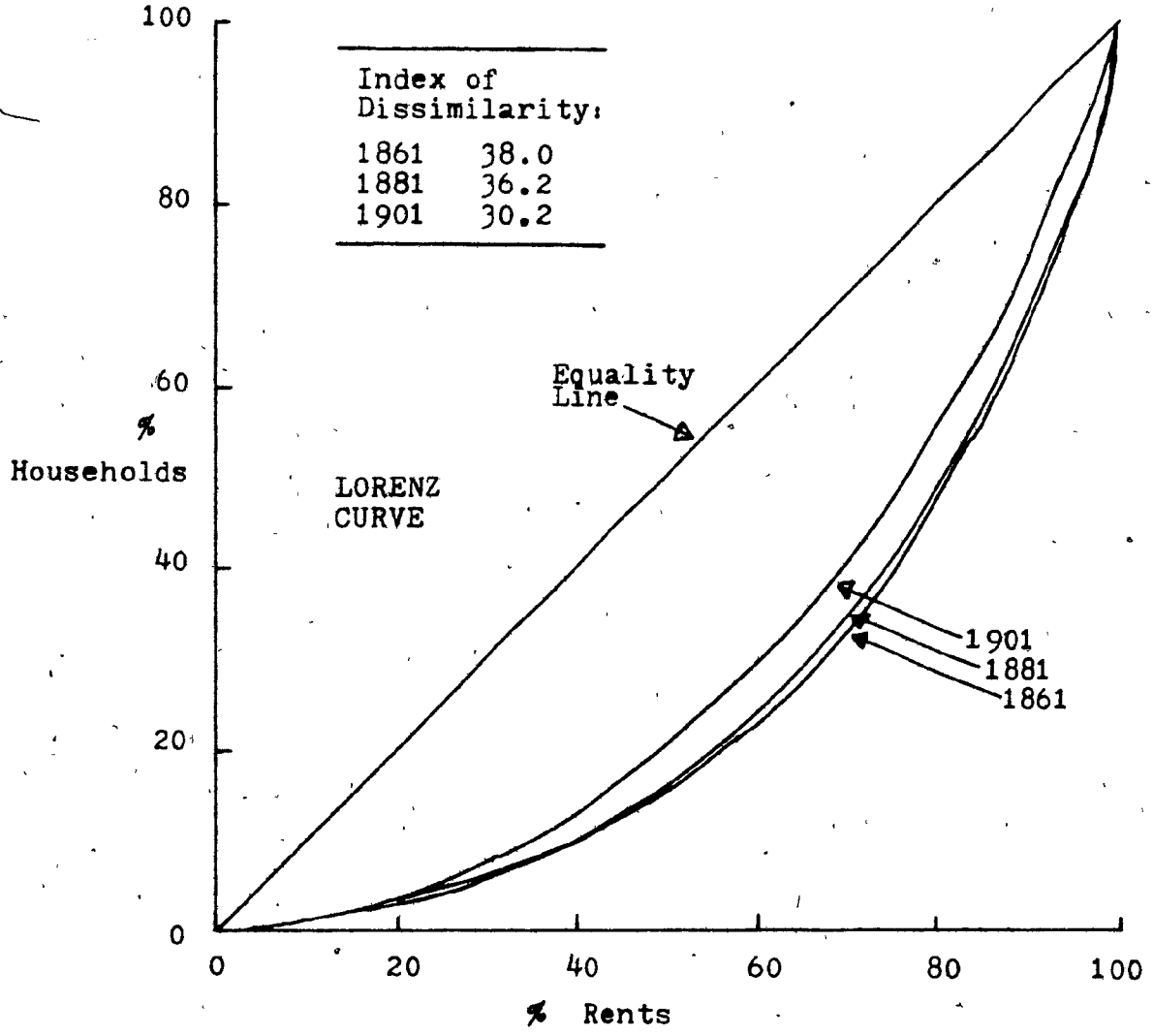


Figure 4.2.: Montreal's Rent Distribution, 1861-1901

Source: compiled from water tax data for 1861, 1881 and 1901.

stability of the location of high and low rent areas despite the tremendous growth of the city and dramatic changes in its industrial geography.

In 1861, 1881 and 1901 wards varied greatly in median household rent. Throughout the period Saint-Antoine east, Saint-Antoine west, Saint-Laurent and Old Montreal remained high-rent wards, while Sainte-Marie, Sainte-Anne and Hochelaga remained low-rent wards. As Table 4.1. shows, the median rent ranged from $40 in Sainte-Marie to $270 in Saint-Antoine east in 1861, and from $54 in Saint-Denis to $330 in Saint-Antoine east, in 1901. The inclusion of new wards in 1881 (Saint-Antoine west, Saint-Jean-Baptiste, Saint-Gabriel and Hochelaga) and 1901 (Saint-Denis) did not change to any significant degree the rent distributions of the location of high and low rent areas.

As Figure 4.3. indicates, the high rent wards were located in the central and north-western parts of the city while the low rent wards, (with the exception of Saint-Denis in 1901) tended to be located in the western and eastern extremes of the city. Rents varied between districts making up a ward. In 1861 Sainte-Anne and Sainte-Antoine south (in the west), and Saint-Jacques and Sainte-Marie (in the east) were uniformly low-rent wards. By 1901, however, they had become differentiated as low-rent neighbourhoods remained in the western part of Sainte-Anne and northern Saint-Gabriel,

1861		1881		1901	
WARD	RENT	WARD	RENT	WARD	RENT
Saint-Antoine east	270	Saint-Antoine east	250	Saint-Antoine east	330
Old Montreal	167	Saint-Antoine west	250	Saint-Antoine west	280
Saint-Laurent	73	Saint-Laurent	95	Saint-Laurent	139
Saint-Louis	59	Old Montreal	80	Saint-Louis	104
Saint-Antoine south	51	Saint-Louis	60	Old Montreal	98
Sainte-Anne	50	Saint-Antoine south	53	Saint-Jacques	87
Saint-Jacques	48	Hochelaga	53	Saint-Antoine south	82
Sainte-Marie east	41	Saint-Jacques	50	Saint-Jean-Baptiste	72
Sainte-Marie west	40	Saint-Gabriel	50	Saint-Gabriel	70
Saint-Gabriel	-	Sainte-Anne	46	Sainte-Anne	67
Saint-Jean-Baptiste	-	Saint-Jean-Baptiste	45	Sainte-Marie east	66
Hochelaga	-	Sainte-Marie west	35	Hochelaga	63
Saint-Antoine west	-	Sainte-Marie east	30	Sainte-Marie west	61
Saint-Denis	-	Saint-Denis	-	Saint-Denis	54
CITY	55	CITY	53	CITY	80

Table 4.1.: Median Rents by Ward in Montreal, 1861-1901

Source: compiled from water tax data for 1861 and 1901.

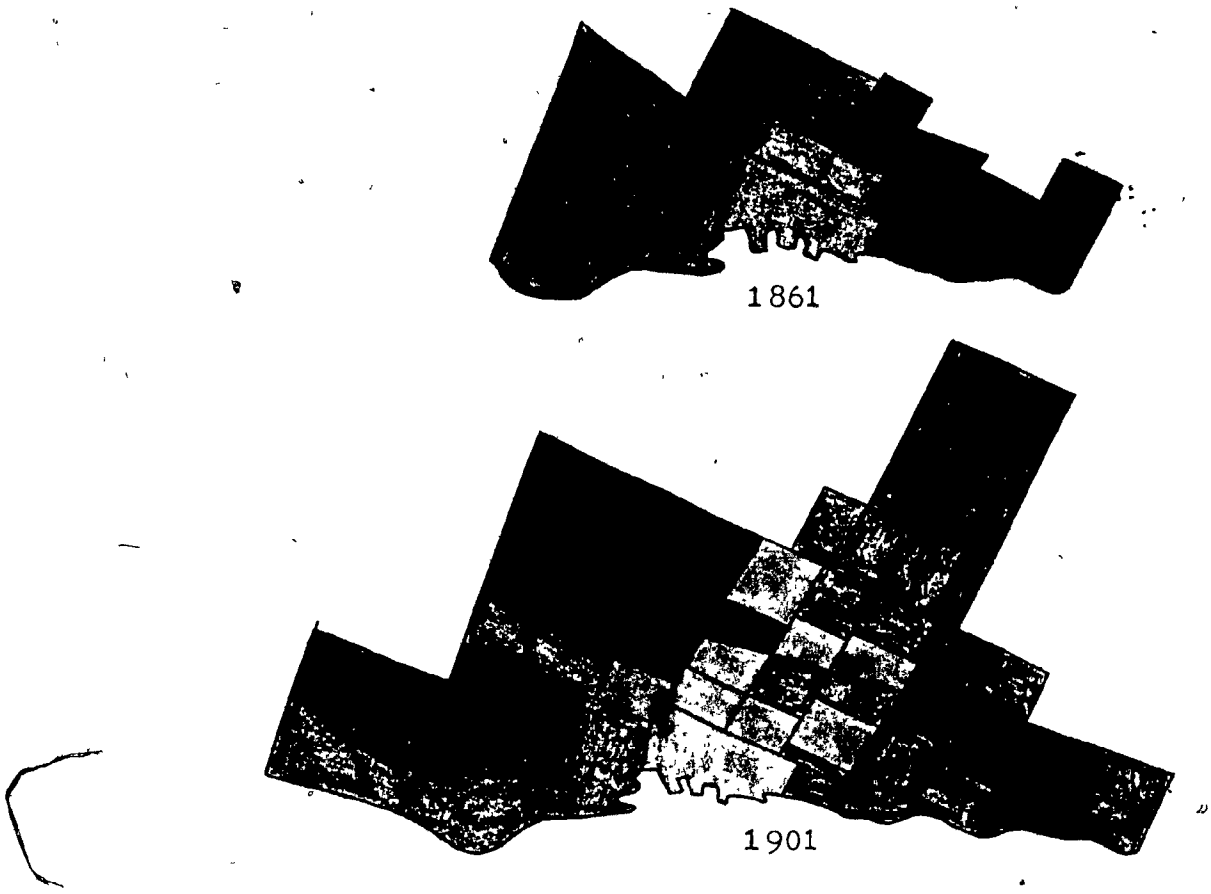


Figure 4.3.: Median Rents by District in Montreal, 1861 and 1901

and in parts of northern Sainte-Marie, Hochelaga, eastern Saint-Jean-Baptiste and Saint-Denis. Surrounding these low-rent districts emerged districts with moderately higher rents. The high-rent households in 1861 were concentrated in Old Montreal, Saint-Antoine east and parts of Saint-Laurent. This high-rent zone had expanded to include all of Old Montreal, Saint-Laurent, Saint-Antoine east, Saint-Antoine west, and parts of Saint-Louis and Saint-Jacques. Throughout the second half of the nineteenth century the geographical distribution of rents showed great segregation. The areas of low and high rents in 1861 expanded and became more differentiated over the following forty years to produce a more complex and diversified city.

The contrasts between wards became stronger. The high-rent wards had even greater concentrations of the city's high-rent households in 1901 than in 1861. Table 4.2 gives the location quotients for rents higher than $180 for all wards in 1861 and 1901. The high-rent wards, as expected, had large concentrations of high rents while the low-rent wards had small concentrations. Over the forty year period, however, high rent concentrations (>$180) increased in the high-rent wards of Saint-Antoine east and Saint-Laurent. The only high-rent ward whose share diminished was Old Montreal. In the other wards of the city the concentration of high rents decreased or remained at extremely low levels with the

WARD	LQ[a]	($) RENT	WARD	LQ[a]	($) RENT
Saint-Antoine east	5.9	270	Saint-Antoine east	6.6	330
Old Montreal	3.7	167	Saint-Antoine west	5.9	280
Saint-Laurent	1.3	73	Saint-Laurent	2.5	139
Saint-Antoine south	0.7	51	Saint-Jacques	1.0	87
Saint-Louis	0.5	59	Old Montreal	0.9	98
Saint-Jacques	0.5	48	Saint-Louis	0.8	104
Sainte-Anne	0.4	50	Saint-Antoine south	0.7	82
Sainte-Marie east	0.2	40	Saint-Jean-Baptiste	0.2	72
Sainte-Marie west	0.1	41	Saint-Gabriel	0.1	70
Saint-Antoine west	-	-	Sainte-Anne	0.1	67
Saint-Jean-Baptiste	-	-	Sainte-Marie east	0.1	66
Saint-Gabriel	-	-	Hochelaga	0.1	63
Hochelaga	-	-	Sainte-Marie west	0.1	61
Saint-Denis	-	-	Saint-Denis	0.1	54

a. LQ = Location Quotient

Table 4.2.: Ward-by-Ward Shares of Rents Greater Than $180 Per Annum in Montreal, 1861 and 1901

Source: compiled from water tax data for 1861 and 1901.

exception of Saint-Jacques.

This chapter has so far shown that the city's rent structure was characterized by: (1) a substantial range and skew; (2) a rise in rents between 1861 and 1901 which was felt more by the working class than the bourgeoisie and the petite bourgeoisie; (3) spatial differentiation; (4) a stability in the location of high- and low-rent wards; and (5) an increasing segregation of high-rent households from the rest of the population. It has also provided a context in which occupational and class rents can be examined in detail.

Occupation Rents in Montreal, 1861-1901

Sixty occupations were chosen to represent the wide variety of working conditions, income, job security, skill and class in nineteenth-century Montreal. After the data were assembled, however, only forty-four occupations had a large enough number of members to be included in the study. This section will examine the rent characteristics of these forty-four occupations. The most noticeable characteristic is the existence of a rent hierarchy. Occupations are ranked by median rent in Table 4.3. They range from labourers who paid $38 in 1861 and $55 in 1901, to merchants who paid $250 in 1861 and lawyers who paid $250 in 1901. Between these extremes the other occupations are arrayed on a relatively

OCCUPATION	MEDIAN RENTS 1861	1881	1901
1. Lawyers	$ 200	200	250
2. Merchants	250	220	230
3. Doctors	230	190	220
4. Manufactures	114	180	161
5. Agents	230	200	155
6. Editors	180	120	148
7. Salesmen	*	119	141
8. Bookkeepers	113	160	121
9. Clerks	96	90	112
10. Jewellers	100	124	107
11. Brassfinishers	85	84	104
12. Hatters and Furriers	62	71	98
13. Foremen	53	67	93
14. Engineers	52	55	92
15. Tailors	57	68	89
16. Printers	67	58	88
17. Carriagemakers	58	52	88
18. Boilermakers	44	48	82
19. Machinists	52	57	82
20. Fitters	60	57	81
21. Turners	57	52	80
22. Cabinetmakers	57	47	79
23. Watchmakers	72	52	78
24. Conducters	60	54	78
25. Plumbers	65	54	76
26. Bookbinders	58	57	75

Table 4.3.: Median Rents by Occupation in Montreal, 1861-1901

continued next page

OCCUPATION	MEDIAN RENTS 1861	1881	1901
27. Carpenters	$ 47	48	74
28. Moulders	47	48	73
29. Painters	52	49	71
30. Blacksmiths	48	47	70
31. Saddlers	63	54	70
32. Joiners	46	45	69
33. Coopers	48	50	68
34. Tinsmiths	59	49	67
35. Carters	45	45	66
36. Plasterers	53	42	66
37. Bricklayers	45	41	66
38. Nailers	49	42	66
39. Shoemakers	46	42	62
40. Cigarmakers	*	43	62
41. Stonecutters	43	42	60
42. Tanners	56	41	57
43. Masons	41	40	55
44. Labourers	38	36	55
CITY	55	53	80

* = insignificant number in occupation

Table 4.3.: Median Rents by Occupation in Montreal, 1861-1901 (continued)

Source: compiled from water tax data for 1861 and 1901.

continuous gradient.

Although a strong differential existed by occupation and there was a continous gradient, there was a grouping of rents within the rent hierarchy. As Figure 4.4, shows the ranked median rents of the forty-four occupations are plotted on a log scale and exhibited three distinct groupings of rents. In both years there is a dramatic increase in the value of the occupational rent median at about four-fifths along the ranked scale, in 1861 at the thirty-second rent ($72) and in 1901 at the thirty-seventh ($121). The occupations paying rents of less than $72 in 1861 and $121 in 1901 are part of the low group. The second group consists of five occupations in 1861 and four in 1901. The top group pays the highest rents and is separated from the middle group by a large gap: $66 in 1861 and $59 in 1901. The differences between the groups are smaller in 1901 than in 1861 and the range between the highest and lowest rents is declining.

The grouping reflects the unequal distribution of resources in nineteenth-century Montreal as well as the ordering of occupations in the social structure. The top two groups, with the exception of brassfinishers in 1861, were composed entirely of professional, white collar and bourgeois occupations. The occupations in these two groups changed very little over the forty years.[4] The top group was composed of lawyers, merchants and doctors in both years plus agents and

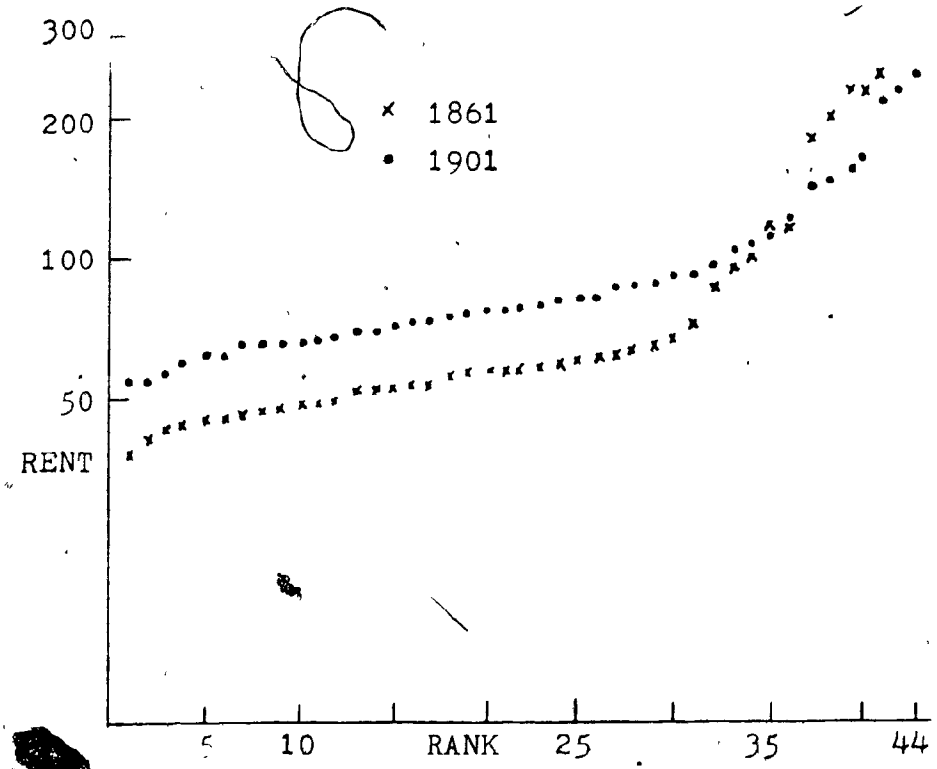


Figure 4.4.: Rents Graphed by Ranks of the Occupations in Montreal, 1861 and 1901

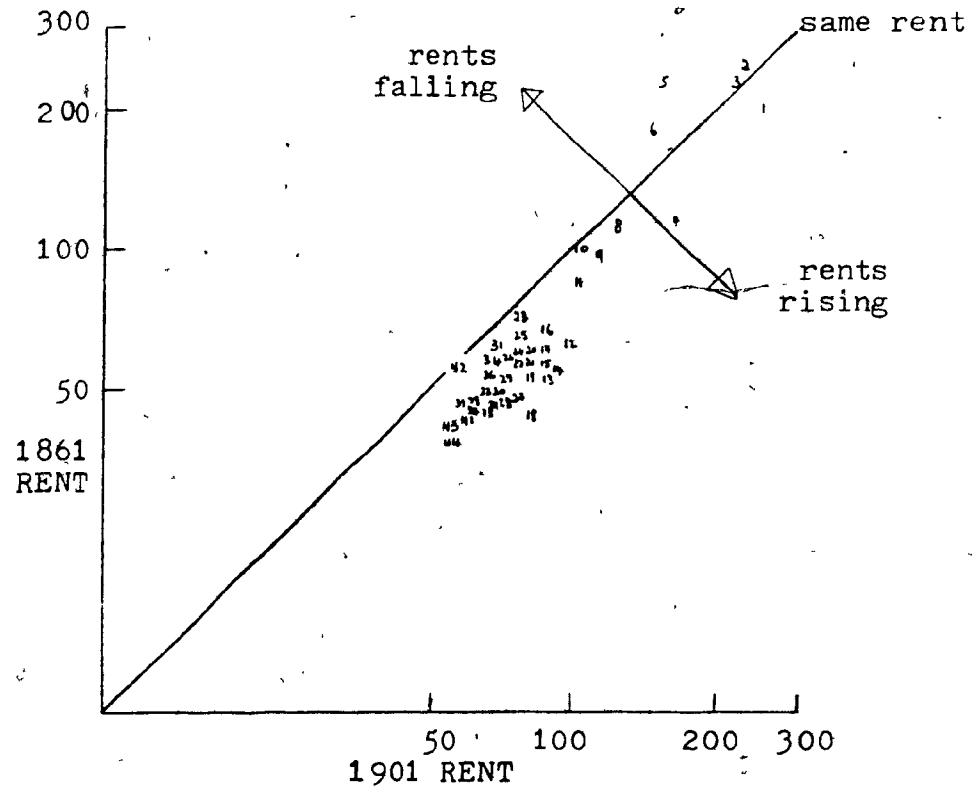


Figure 4.5.: Occupational Rents for Montreal in 1861 and 1901

Source: compiled from water tax data for 1861 and 1901.

editors in 1861, while the middle group was dominated by the white-collar occupations of bookkeepers, clerks, travelling salesmen and agents (see figure 4.5.).

The bottom group, which contained the vast majority of the forty-four occupations, was primarily made up of blue-collar working class occupations (see figure 4.5.). All levels of the manual working class were included in the bottom group. At the top of this group were the highly skilled occupations such as printers as well as foremen. At the lower end were labourers and semiskilled occupations such as painters and carters.

Even though the structuring of the hierarchy remained relatively stable over the forty years, the median value changed. While the city's median rent increased by 45% (from $55 to $80), the increase was not the same for all occupations. Boilermakers' median rent rose 86% (from $44 to $82), while the rents of agents dropped 33% (from $230 to $155). As Table 4.4. indicates, the major increases occurred in the bottom group. The occupations in the bottom group had remarkably consistent increases, around about 40%, while the rents of the top five occupations actually decreased by 7%, and the next five increased by only 24%. In other words, the increase in rents between 1861 and 1901 was hardly felt by the high-rent occupations, but fell upon the manual working class.

The individual occupations whose median rents either

RANK	RENTS 1861 ($)	RENTS 1901 ($)	% CHANGE 1861-1901
1 - 5	218	203	- 7
6 - 10	102	126	24
11 - 15	66	95	44
16 - 20	59	84	42
21 - 25	56	78	39
26 - 30	52	73	40
31 - 35	47	68	45
36 - 40	45	64	42
41 - 42	39	-	46
41 - 44	-	57	

Table 4.4.: Rents Grouped by Ranks of the Occupations in Montreal, 1861 and 1901

Source: compiled from water tax data for 1861 and 1901.

TOP TEN	CHANGE 1861-1901 RENT RANK %	NO.	1861 MEDIAN RENT	RANK	1901 MEDIAN RENT	RANK
Boilermakers	86	21	44	39	82	18
Engineers	77	13	52	27	92	14
Foremen	75	12	53	25	93	13
Machinists	58	8	52	27	82	19
Hatters	58	3	62	15	98	12
Carpenters	57	6	47	33	74	27
Tailors	56	6	57	21	89	15
Moulders	55	5	47	33	73	28
Carriagemakers	52	2	58	19	88	17
Joiners	50	3	46	35	69	32
CITY	45	-	55	-	80	-
Tinsmiths	14	-16	59	18	67	34
Saddlers	11	-16	63	14	70	30
Watchmakers	8	-12	72	11	78	23
Bookkeepers	7	- 1	113	7	121	8
Jeweller	7	- 2	100	8	107	10
Tanner	2	-18	56	24	57	42
Doctor	- 4	- 1	230	2	220	3
Merchant	- 8	- 1	250	1	230	2
Editor	-18	- 1	180	5	148	6
Agent	-33	- 2	230	3	155	5
BOTTOM TEN						

Table 4.5.: Top Ten and Bottom Ten Occupations by Percentage Change for Median Rents in Montreal, 1861 and 1901

Source: compiled from water tax data for 1861 and 1901

increased or decreased the most between 1861 and 1901 are shown in Table 4.5. As would be expected, the ten occupations with the highest percentage increases all had positive changes in their rankings, which means that they were moving up the scale relatively. Some changes were substantial. For example, boilermakers move up 21 ranks, engineers and foremen 13 and 12 respectively. These ten occupations were primarily medium rent ones which rose from the middle of the manual working class scale in 1861 to the top of that scale in 1901. A disproportionate share of these occupations were metal-working trades. The increased rents of boilermakers, engineers, machinists and moulders suggest not only the growing importance of the metal-working industry in Montreal's economy in this period but also the growing size of the metal workers' incomes. The substantial increase in the rankings also suggests a degree of fluidity within the manual working class. Despite the general stability, individual occupations moved up and, as we shall see, down the scale, depending on the fortunes of the economy. The growth of, and the skills needed in, the metal-working trades, for example, resulted in the increased rents of the metal-working occupations.

The occupations at the bottom of Table 4.5. were characterized by two types. One type was occupations which dropped in rank, especially tinsmiths, saddlers, watchmakers and tanners, and fell from the top of manual working-class

rents in 1861 to the lower half by 1901. These occupations were undergoing considerable internal change. In 1861 saddlers, tanners, tinsmiths and watchmakers were skilled artisans with a relatively large share of proprietors among their number, by 1901 considerable damage had been done to these trades. The effect of this change upon their rent distributions was to lower the percentage of households paying high rents. For example, the percentage paying rents greater than $180 among saddlers and tanners declined from 12.2% and 11.4% in 1861 to only 2.4% and 1.7% in 1901 respectively. The second type were white-collar and professional occupations whose rankings shifted only slightly downward but whose median rents declined substantially.

Class Rents in Montreal, 1861 and 1901.

The variation of the median household rent by area and occupation suggests class differences in the city's rent structure between 1861 and 1901. The class structure used here is made up of the same set of twenty-five occupations used in the class analysis in the rest of the thesis (see Chapter Three).

In Table 4.6. the median rents of the six social classes for 1861 and 1901 are presented. It shows that median rents in the city were hierarchically structured by social class, ranging from $38 for the unskilled to $250 for the bourgeoisie

	SOCIAL CLASS AND OCCUPATION	MEDIAN RENTS 1861	1901	% CHANGE 1861-1901
i	Bourgeoisie	250	210	-16.0
	-Merchants	250	230	
	-Manufacturers	N	161	
ii	Petite Bourgeoisie	210	230	9.5
	-Lawyers	200	250	
	-Doctors	230	220	
iii	White Collar	105	125	19.0
	-Agents	230	155	
	-Travelling Salesmen	N	141	
	-Bookkeepers	113	121	
	-Clerks	96	112	
iv	Skilled	55	87	58.2
	-Jewellers	100	107	
	-Brassfinishers	85	104	
	-Foremen	53	93	
	-Engineers	52	92	
	-Printers	67	88	
	-Plumbers	65	76	
	-Saddlers	63	70	
	-Coopers	48	68	
v	Semiskilled	46	66	43.5
	-Bookbinders	58	75	
	-Moulders	47	73	
	-Painters	52	71	
	-Carters	45	66	
	-Nailers	49	66	
	-Cigarmakers	N	62	
	-Shoemakers	46	62	
	-Stonecutters	43	60	
vi	Unskilled	38	55	44.7
	-Labourers	38	55	

N = insufficient number in occupation to obtain median rent.

Table 4.6.: Median Rents by Social Class in Montreal, 1861 and 1901.

Source: compiled from water tax data for 1861 and 1901.

in 1861, and from $55 for the unskilled to $230 for the petite bourgeoisie in 1901. Within these ranges the other social classes were arrayed.

There were only small differences within the manual working class. The skilled paid 45% and 58% more rent than the unskilled in 1861 and 1901. In 1861 the skilled paid a rent equal to the city median and moved higher by 1901. There were also large differentials between the manual working class and the other social classes. The bourgeoisie, the petite bourgeoisie and the white-collar working class had median rents of a much greater magnitude, distinctly separate, from the manual working class.

The manual working-class rents increased at a faster rate than all others, while the rents of the white-collar workers rose more rapidly than those of the bourgeoisie. The largest increase was among the skilled workers (more than 50%). For the bourgeoisie, rents actually decreased (-16%). Thus, the general increase in rents in the second half of the nineteenth century fell more heavily upon the working class, especially the manual working class.

The frequency distribution of household rents is of course very different between social classes. Figure 4.6. shows the rent distribution of each of the six social classes in 1861 and 1901. A large number of households among the bourgeoisie and the petite bourgeoisie paid rents higher than

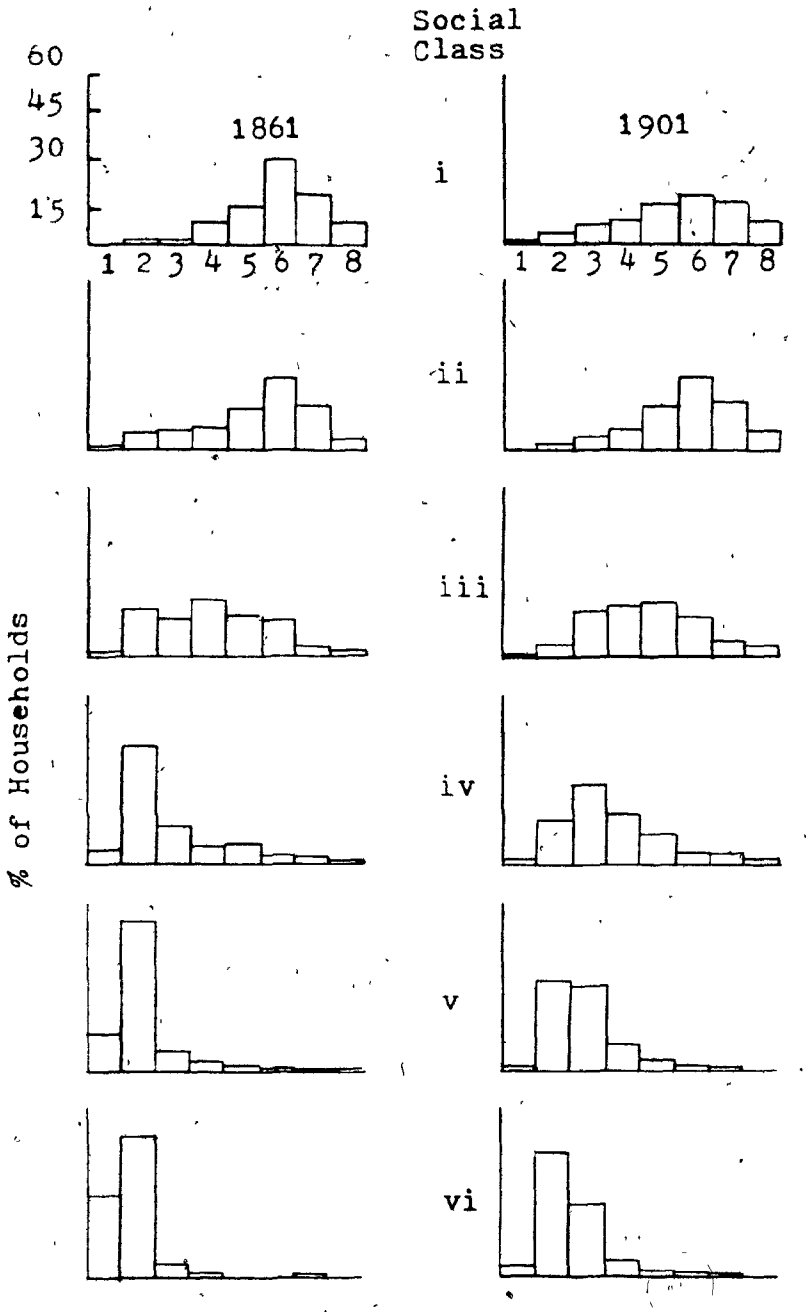


Figure 4.6.: Rent Levels for Social Class in Montreal, 1861 and 1901

Note: For the rent values of each level see Figure 4.1.

Source: compiled from water tax data for 1861 and 1901.

$90 (ie., rent level 4 and up). The great mass of manual working-class households, on the other hand, were limited to the lowest rent levels: only among the skilled was there a significant number paying more than $90. White-collar working-class households were relatively dispersed among the rent levels: the majority were sandwiched between the manual working class, and the bourgeoisie and the petite bourgeoisie. Class played an important role in defining the ability of households to pay rent, and in effect to gain access to different forms of housing and neighbourhoods.

It has been demonstrated that a social class rent hierarchy existed, characterized by substantial differences between and within the social classes. The same generalization holds true for the spatial distribution of social class rents. In Figure 4.7. the median rent for each social class is shown ward by ward. Two major points can be extracted from the maps. First, in both 1861 and 1901, for any social class, individuals who lived in the north-western wards (Saint-Antoine east, Saint-Antoine west and Saint-Laurent) tended to pay higher rents than the average for the class. The lowest rent wards are the peripheral ones of Sainte-Marie, Sainte-Anne and Saint-Denis. Second, within a ward, rent declined in value from the bourgeoisie or the petite bourgeoisie down to the unskilled. Thus, a labourer living in Saint-Laurent was likely to pay more rent than a

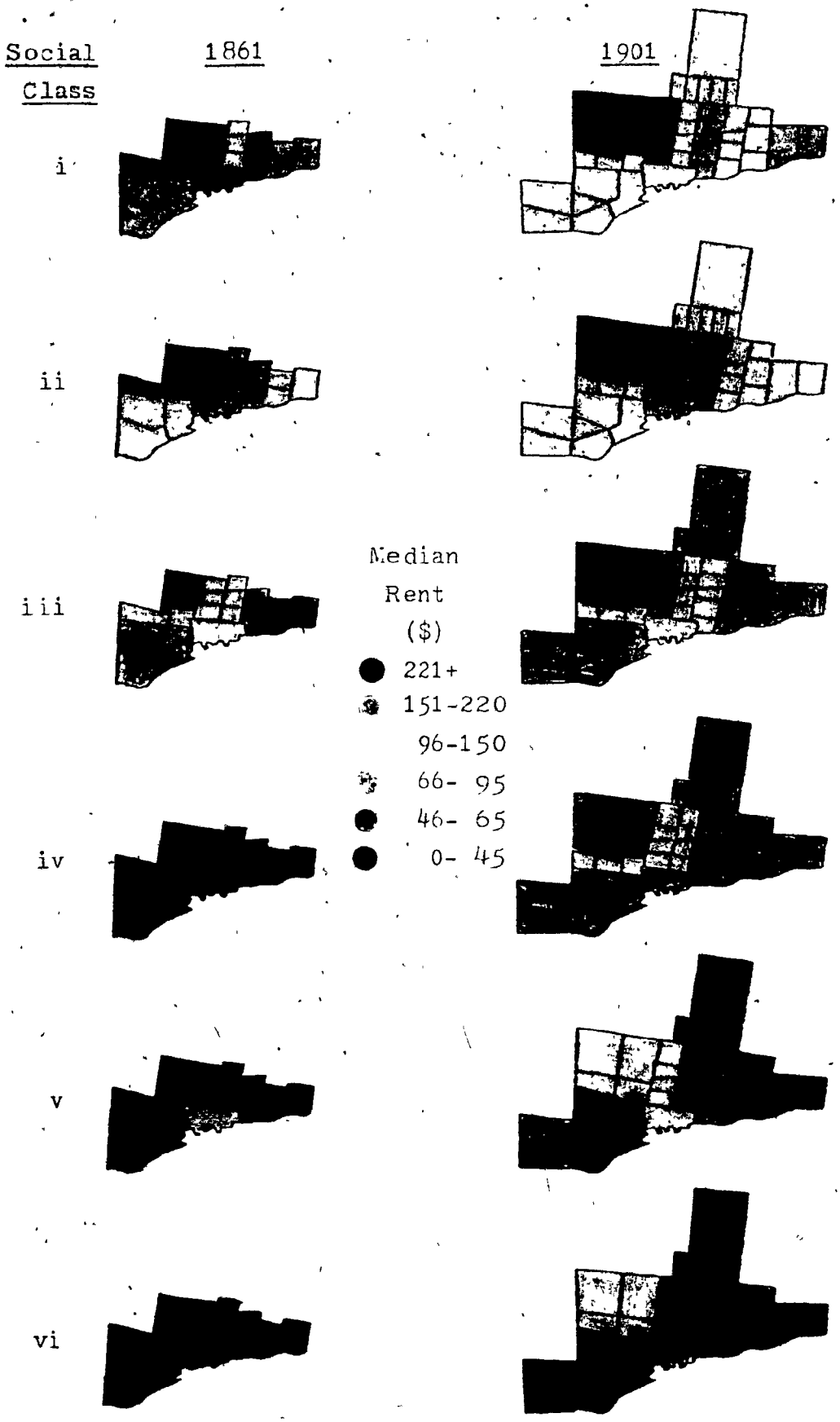


Figure 4.7.: Median Rents by Social Class and Ward in Montreal, 1861 and 1901

labourer living in Saint-Denis. A lawyer in Saint-Denis, however, was more likely to have a higher rent than a labourer in Saint-Laurent.

The existence of class-based rental areas in Montreal in the second half of the nineteenth century was, of course, linked to the development of class-based residential areas. The high-rent areas were composed primarily of the bourgeoisie and the petite bourgeoisie, and to a lesser degree, the white-collar working class. The growth of new forms of economic activity after 1860 provided not only the way in which the city's resources were allocated but regulated the geographic location of classes and their housing. The formation of industrial districts along an east-west axis in the southern part of the city defined the areas in which different classes and rental areas were located.

In conclusion, three features of Montreal's occupational and class rent distributions are prominent in the second half of the nineteenth century. First, a rent hierarchy existed which was ordered by class and occupation. The capacity of an occupation to pay rent was dependent upon the class in which it was a member. The manual working class had access to only a limited range of housing in Montreal as the large number were unable to pay rents of more than $90 annually. The white-collar working class, although still limited in its choices, was able to pay higher rents and thus gained access

to a larger share of the city's housing. Second, the development of rental areas defined the social partitioning of class space. Even though social classes with low median rents had substantially higher rents in the high-rent areas, the high-rent areas correspond to areas with an over-representation of the bourgeoisie and the petite bourgeoisie. The growth and expansion of high-rent areas in certain parts of the city ensured the exclusion of all but a small number of the working class from within their borders. Third, the increase in the value of the city's rents fell more heavily upon the manual working class than the other social classes. Whether this was a reflection of a rising standard of living or a rising rent burden is open to question. In order to gain some idea of this, the next section addresses the question of the relationship between rent and income.

Rent and Income in Montreal, 1901

Throughout this chapter rents have been used as a measure of the position of occupations and social classes within the social hierarchy. It has been shown that differences existed between occupations and social classes in terms of the annual rent. What, however, is the relationship between rent and income? In our times studies of social structure employ income as a variable to help explain class and occupational access to resources such as education and housing. For the

nineteenth century, however, income data are virtually non-existent. The purpose of this section is to examine whether rent is a good estimator of income. By utilizing the wage records of the Grand Trunk Railway and the published reports of various federal and municipal governments for 1901 and 1902, we may gain some understanding on the question of the relationship between rent and income among the working class. If this study can show that income and rent are highly correlated then the rent data for Montreal will provide a valuable surrogate for income and an important tool of analysis of social structure.

In 1901 the average industrial wage-earner, according to the census of that year, received $333.20, or $6.66 per week. Copp found that in those industries which employed insignificant numbers of women and children the wage for 1901 was $405 or $7.78 per week. He also estimated that women earned on average $190 a year, and children even less (Copp, 1974, 32). Ames, in his study of a working-class district in Montreal, states that the income of a family of the "real industrial class" was between $10.00 and $10.25 per week or $500 and $533 per annum (1972, 36). The minimum weekly budget of a family of five in 1901, according to the Department of Labour, was $13.77 or $688 per annum (Copp, 1974, 32).

While the average annual wage for the industrial working class person hovered at about $330 there were some dramatic

differences by industry and area. Table 4.7 gives the average wage for a number of selected industries and all five census districts in 1901. Marx, in a discussion of wages and the division of labour commented that workers in different industries

> require different degrees of training, and must therefore possess very different values. Manufacture therefore develops a hierarchy of labour-powers, to which there corresponds a scale of wages. (Marx, 1977, 469).

The crucial factors affecting wage rates in the long term are the supply of labour and the rate of industrialization (Dunlop, 1964, 25). Wage rates are also determined by intra-firm factors such as technology, administrative organization and social custom, and inter-firm factors such as product markets, sources of the labour force, and common labour market organization (Dunlop, 1964, 16-17). The result of the convergence of these factors in Montreal was to create a wage hierarchy by industry. At the top of the hierarchy were the heavily capitalized and male-dominated metal-related industries which were located in the western part of the city, while at the bottom were the labour intensive industries such as clothing, tobacco and food processing.

Very few workers were employed throughout the entire year and this severely limited the income of the mass of the working class. Seasonal and cyclical depressions played havoc

	WAGES $
Census District	
Saint-Antoine	347.64
Saint-Laurent	345.71
Sainte-Anne	334.84
Sainte-Marie	323.10
Saint-Jacques	311.35
Industry	
Boilers and Engines	443.02
Brass Castings	437.11
Foundries	425.65
Carriages and Wagons	422.47
Printing and Publishing	402.53
Furniture	401.94
Cooperages	391.49
Plumbing and Tinsmithing	364.01
Boots and Shoes	337.58
Saddles and Harnesses	326.71
Rubber Clothing	324.09
Tobacco	318.64
Clothing (non-factory)	313.46
Bread, Biscuits and Confectionery	307.71
Coffee and Spices	302.52
Hats, Caps and Furs	257.41
Clothing (factory)	244.59

Table 4.7: Average Annual Wages for Selected Industries and Census Districts in Montreal, 1901

Source: Census of Canada, 1870-71 Vol.3

with the working-class wage. For example, the Montreal Immigration Agent wrote that in 1894 the

> general depression which prevailed in this city during the present year was doubtless responsible for the dull labour market and the decline in the wages of the workingmen (Report of the Minister of the Interior, 1895).

Those most heavily hit by seasonal and cyclical changes in the economy were the labourers and workers in the low-paid sectors and the construction industry. In the construction trades most workers were only employed for eight to ten months of the year. Likewise, cigarmakers regularly found themselves out of work:

> as a general rule in the winter time there is less work in the factories and our wages are regularly lowered every winter. (Royal Commission,1889, 55-56).

In the metal-working trades, however, as the testimony of a number of manufacturers to the Royal Commission signify, there was only a small amount of seasonal unemployment among the city's foundries, nail factories and engine shops (1889, 254, 288, 304). The flooding of the labour market by both skilled and unskilled labour was also responsible for unemployment and low wages. The Immigration Agent wrote in 1901 that:

> the experience of this agency, for years past, is that where one mechanic succeeds in securing satisfactory employment, there are scores who are compelled to adopt other means of livlihood such as the work

> of farm labourers, etc. (Report of the Minister of the Interior, 1901).

According to the evidence presented at the Royal Commission many occupations, such as saddlers, moulders and marble cutters, had to contend with a surplus of labour in their trades (1889, 307, 471,496). The introduction of machinery was also responsible for unemployment. At the end of the century the introduction of the linotype caused a great deal of unemployment among the city's printers (Report of the Minister of the Interior, 1901). Coopers by the late 1880s were "leav[ing] the business and ... turn[ing] to anything they can get" because their work was "mostly done by machinery" (Royal Commission, 1889, 560-61).

The effect of the irregularity of employment, the lowering of wages, and the introduction of machinery was to ensure that a large number of working-class families were unable to meet the everyday needs of survival. Copp, in his study of Montreal between 1897 and 1929, states that the vast number of working-class families were

> unable to reach the minimum income level unless there was relatively full employment and at least two wage earners per family unit (Copp, 1974, 31).

The implications of this situation upon the rent-paying capacity of the working class were tremendous. The insecurity of employment and the existence of a wage hierarchy played a decisive role in determining the access of any working-class

family to the available housing. The greater the insecurity and the lower the wage, on the one hand, the greater the restrictions of a family to the city's housing supply. On the other hand, skilled workers in more steady employment could afford to pay for the more expensive and better housing.

In order to obtain a better idea of the relationship between income and rent, a study was undertaken of a selected number of blue- and white-collar working-class occupations. Although very few wage records exist for the nineteenth century, it is possible by examining the extant records of the Grand Trunk Railway and the federal and municipal governments to draw some tentative conclusions. The annual income of the selected workers in 1901 and 1902 was compared with the rent they were paying in those same years. The rent was obtained from the Montreal water tax rolls.

The blue-collar working-class occupations were selected from the records of the Grand Trunk Railway in January 1902.[5] These wage records provide by department the worker's name, job title and monthly wage. The occupations selected were chosen on a number of criteria. They reflect the large differences in wages, degree of skill and type of work performed. An individual's annual wage was obtained by multiplying the monthly wage by twelve. It is assumed that the January wage was representative of all other months. It should be kept in mind that employment at the Grand Trunk

Railway was more regular than in many other establishments in Montreal at the time, hence the annual wages of railway employees were above the city average for the same occupations.

From a number of reports of federal and municipal governments in 1901 a selection of incomes of non-industrial workers was obtained. The incomes of clerks employed by the federal custom and post office departments and by the City of Montreal were collected as well as those of letter carriers. The reports give the annual income of every individual employed. This sample, like the Grand Trunk Railway one, contained a wide variation in annual incomes.

The original samples consisted of 204 railway workers and 198 government employees. Of each sample 156 were found in the water tax rolls of 1901 and 1902. (The retrieval rates were 76.5% and 78.8% respectively). Only those individuals who were the heads of households were retained, and all ambiguous cases were rejected. A major problem remains with respect to the presence of additional wage-earners in each household. There is no means by which we can determine this. It is assumed that each person under study here was the sole breadwinner of the family.[6]

The findings of the study are shown in Table 4.8. A number of interesting points emerge. First, in general the median and mean rents of occupations decrease as income

	SOCIAL CLASS	NO.	MEDIAN WAGE	MEDIAN RENT	MEAN WAGE	MEAN RENT	RENT BURDEN %
Grand Trunk Railway							
Foremen	iv	16	964	100	974	111	11.4
Boilermakers	iv	13	740	100	698	103	14.7
Brass Finishers	iv	8	625	100	640	100	15.7
Machinists	iv	25	625	100	622	105	16.9
Carpenters	iv/v	28	468	90	500	96	19.1
Painters	v	26	392	70	403	76	18.8
Labourers	vi	40	345	60	365	69	18.8
Government							
Post Master	ii/iii	1	4000	300	4000	300	7.5
P.O.[1] Clerks-1st Class	iii	4	1450	180	1438	198	13.8
P.O.Clerks-2nd Class	iii	13	1200	160	1131	176	15.6
Municipal Clerks	iii	33	900	140	1008	178	17.7
P.O.Clerks-3rd Class	iii	33	800	130	748	132	17.6
Custom Clerks	iii	10	700	150	805	181	22.5
Letter Carriers	iv/v	62	570	90	540	96	17.7

1. P.O. = Post Office

Table 4.8.: Wages, Rents and Rent Burden Among Selected Working-Class Occupations in Montreal, 1901

Source: Wage records of the Grand Trunk Railway, the Post Office and Customs Departments of Canada, and the City of Montreal.

declines. The government workers' rents were almost perfectly structured in terms of their wages, with the exception of custom clerks. The rents of the Grand Trunk Railway workers exhibit a similar pattern. There seems to be a threshold of rent. The top earning occupations (foremen down to machinists), paid similar mean rents and the same median rents despite about a $350 (50%) income difference. The highest income occupation, the foremen, did pay the highest mean rent, and the others' occupations did decrease in order, with the exception of the machinists. What these data indicate is that rent is a good, but not perfect, indicator of income. If we recall the social class stratum of these occupations, we observe that occupations of the same social class seem to be paying the same rent.

Second, the amount of income that went to rent (the rent burden) increased as income declined. For example, among the government employees the Post Master's rent was only 7.5% of his wage while the mean rent burden of the letter carriers was 17.7% of their income. Likewise, the Grand Trunk Railway foremen's rent burden was little over 11% while the labourer's was almost 19%. The rent burden of the lowest income occupations in each group, however, was less than that of the occupations just above them in the income scale. Why this should be so is not immediately evident. What is evident is that the higher paid occupations had both a greater proportion

and a larger share of their income available for expenditures other than rent. Rent is not very income-elastic. The priority of people is on the basic commodities such as housing, food and clothing (and in Montreal heat). People can only expend more of their income on other things when their income reaches a certain threshold. Foremen, for example, not only had larger and better housing than labourers but also had more income to spend on food, clothing, education, etc. They were also more able to accumulate some savings for their old age or times of economic depression.

Third, clerical workers in general paid higher rents than blue-collar workers. This was partly to do with their higher incomes, but those clerks with a similar income to some blue-collar occupations paid substantially higher rents. For example, municipal clerks had a mean income of $1008 and a rent of $163 while foremen with a mean income of $974 paid a mean rent of $108. Similarly, custom clerks paid a median rent of $150 out of an income of $700 while boilermakers only paid $100 out of $740. Thus, the rent burden of clerks was greater than among similarly or lower paid blue-collar workers. It was suggested in Chapter Three that the white-collar working class played a central role in the formation of social and spatial structures in nineteenth-century Montreal. The evidence presented here lends weight to the idea that white-collar workers tended to

identify with classes other than the working class. Clerks seem to have been willing to sink more of their income (both absolute and relative) into their housing. More expensive housing separated the clerks from the rest of the working class in terms of location. It also set them apart in their perception of themselves in terms of social class.

As the study of the sample of blue-collar and white-collar workers indicates, differences in the incomes of different strata of the working class produced consistent variations in their rents. In general, high income workers, whether clerical or blue collar, paid higher rents than low income workers. They also tended to pay a smaller share of their income on rent. This verifies that rent is a good estimator of income. Thus, the rent hierarchy by occupation and social class given in earlier sections of this chapter is a meaningful indicator of income scale.

Conclusion

This chapter has demonstrated that Montreal in the second half of the nineteenth century was characterized by the existence of class-based rental districts which were closely linked to the development of class-based residential areas. The high-rent areas were composed primarily of the bourgeoisie and the petite bourgeoisie, and to a lesser extent, the white-collar working class. Low-rent areas were populated by

the different segments of the working class. The growth of new forms of economic activity not only influenced the way in which the city's resources were allocated but also the geographical location of classes and their housing. The formation of industrial districts along an east-west axis in the southern part of the city defined the spatial partitioning of classes and rents.

It has also been shown here that in a sample of working-class occupations incomes were reflected in rents. As theory leads us to suspect, rent is indeed a good indicator of the living standards of the working class, because living standard is a direct result of income.

Notes

1. All rents are annual rents unless otherwise stated.

2. Throughout the thesis the median was preferred to the mean as a measure of centrality. In a positively skewed distribution, a small number of high rents inflate the value of the mean. The median, however, gives a more reliable figure.

3. The Lorenz curve is a graphic method of illustrating the similarities between two distributions. If the two distributions are proporotinally identical, the Lorenz curve corresponds to the equality line while differences in the distributions result in the Lorenz curve deviating from the equality line. The index of dissimiliarity is the measure of differences between two distributions. The greater the degree of association between the distributions the smaller the index of dissimilartity. The index is obtained thus:

$$\text{Index of dissimilarity} = \frac{\Sigma | x_i - y_i |}{2}$$

See Taylor (1979, 179-84) for greater detail.

4. A rank order correlation coefficient test was undertaken on the forty-four occupations for 1861, 1881 and 1901. It showed that over forty years a strong correlation existed. Like the city and the ward patterns discussed earlier the occupational rent structure maintained its basic form. The results of the correlation coefficient tests were:

1861 - 1901 = 0.81
1861 - 1881 = 0.88
1881 - 1901 = 0.94

5. I am extremely grateful to Ralph Hoskins for his kindness in allowing me access to these records.

6. Since the average female wage was less than half the average male wage and children's wages were even less, the additional income brought in by wives and children might add an extra 50% to the families income. A boarder or a second family (for example, a married son or daughter) would also significantly augment the household's income.

CONCLUSION

The primary purpose of this thesis has been to link the restructuring of Montreal's economy to the development of residential patterns in a period of rapid industrialization. To this end this study has examined the growth of the city's industry in conjunction with the unfolding of residential and rent structures. I have attempted to show that the generally accepted model of the nineteenth-century industrial city as a 'transitional' one between the commercial and corporate cities is inadequate. It needs to be replaced by what I have termed the industrial capitalist pedestrian city. The industrial city was characterized by a number of distinctive features. In the course of its development, industrial capitalism undermined both the social relations and the spatial structure of the mercantile city. Industrial districts emerged in areas adjacent to the city centre and close to transportation facilities as old industries were forced out of, and new ones restricted from locating in, the city core. The rapid expansion of the city's population and territory encouraged the massive reorganization of economic and residential space. The requirements of each household to be close to its place of work as well as the inadequacy of the transportation system ensured that the industrial city would remain a pedestrian one. These features were the determining elements of the

class-based residential differentiation and rent structure in the industrial city.

The driving force behind the emergence of the industrial city was the growth of capitalist relations of production. By the 1870s Montreal had a substantial industrial base centered on the capitalists' control of the means of production and the selling of labour power by the working class. The foundations of industrial capitalism were laid in the early beginnings of the developments taking place in the first half of the century (and earlier?). After the 1870s the city's industry grew rapidly so that by 1900 Montreal was the premier industrial city of Canada. The development of Montreal's industry, however, was not an even one. In the first place, the growth of industry was linked to the international rhythms of economic and building cycles. In the second place, Montreal's economy was characterized by sectoral and locational differences. The differentiation and diversification of industry alongside the expansion of the city's population and territory had enormous ramifications upon the evolution of urban structure. The formation of industrial districts and the absence of a cheap transportation system severely restricted the mobility of the working class.

The centralization and specialization of production paved the way for the formation of industrial districts in nineteenth-century Montreal. The formation of these districts

was strongly influenced by a number of features. Three in particular stand out. The reorganization of the labour process fundamentally altered the nature of work. The first stage in this process was an ever increasing division of labour. This was followed by the introduction of machinery, the creation of new organizational structures and the growing control by employers over production. The result was the development of a proletariat which was characterized by its dependence on a large casual labour market, the deterioration of artisanal skills and the increasing loss of control over the work process. Concomitant with the transformation of the labour process was the alteration of the home/work relationship. As production became increasingly centralized in the hands of capitalists the majority of workers had to find work outside the home. This gave rise to a stratified housing market and the growing segregation of people by occupation and class. Changes were also taking place in land-use patterns. Industry was forced out of the city as other functions were able to better compete for this prime land. In the process of locating close to the city centre and transportation facilities, industry formed distinct clusters. These clusters or districts were characterized by industry of a particular type, scale, level of capital investment, and employment opportunities. Location factors responsible for the formation of industrial districts were agglomeration

economies, internal economies of scale, land values, transportation costs, and labour supply.

Three districts -- Sainte-Anne, Old Montreal and Sainte Marie -- developed in Montreal in this period. Together they formed an industrial belt extending in an east-west direction in the southern part of the city close to the railroads and waterfront. The rest of the city was characterized by scattered small-scale industry and workshops as well as residential areas.

Although Montreal's economy was undergoing considerable changes in the second half of the nineteenth century, the city's occupational structure remained remarkably stable. In terms of occupations, and by implication industrial structure, wards exhibited varying degrees of diversity. Central wards like Saint-Laurent and Saint-Louis were extremely diverse, while the peripheral wards like Saint-Gabriel and Sainte-Marie tended to be more homogeneous. The wide spectrum of occupational diversity and the locational differences of types of industry ensured that each ward, or neighbourhood, had its own distinctive character. Another aspect of Montreal's occupational structure was that the spatial distribution of the working-class occupations displayed elaborate sectoral specialization. Sectors were concentrated in different parts of the city. For example, employees in the printing and clothing trades were centrally located, while metal workers

tended to reside in the western part of the city.

One of the most important findings in this study has been to show that spatial structure reflected social structure in Montreal in the second half of the nineteenth century. As early as 1861 Montreal was characterized by class-based residential differentiation. The blue-collar working class populated areas of the city distinct from the other social classes. Over the following forty years this split was accentuated, as the bourgeoisie, the petite bourgeoisie and the white-collar working class themselves became more residentially integrated. At the same time they became residentially segregated from the blue-collar working class. It was also found that the working-class districts were not a homogeneous mass, but displayed an elaborate geographical differentiation. Internally, these districts were segregated along the lines of skill and occupation. By 1901, a substantial proportion of the working class was residing in suburban areas.

In the last chapter the city's rent structure was analysed from a variety of angles. It was shown that it displayed a number of significant features. Rents were distinguished by a considerable range; in 1901 from $10 to $3 000. The rising trend in rents between 1861 and 1901 affected the working class more than any other other class. A spatial differentiation of rents existed which remained stable despite

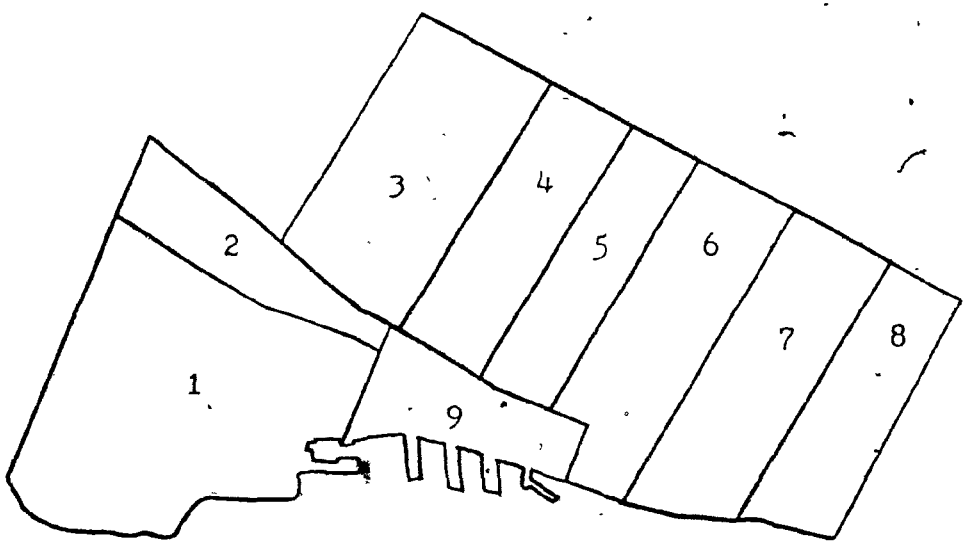
the massive growth of the city. High-rent households became increasingly segregated from the rest of the population.

The last chapter also showed that rent data accurately reflect the class divisions of Montreal society, the incomes and -- by implication -- the living standards of the several classes. The existence of class-based residential districts was produced in the spatial distribution of rents as well as in the hierarchy of rents by occupation and class. A study of industrial and government working-class employees produced strong correlations between income and rent. If rent can be used as a surrogate for income and living standards, then the rent hierarchy found for the forty-four occupations and six social classes verifies the conclusion that industrial capitalism was characterized by dramatic differences between and within classes. It also suggests that the rent data are an excellent source for the detailed study of these inequalities.

This thesis has not attempted to examine the political and social implications of the residential differentiation and the marked inequalities in rent structures. Rather, it has been an empirical investigation which has established the basic patterns of segregation and inequality in one industrializing city. It has set the framework in which questions involving political consciousness and activity, class fragmentation, and the impact of industrial growth can

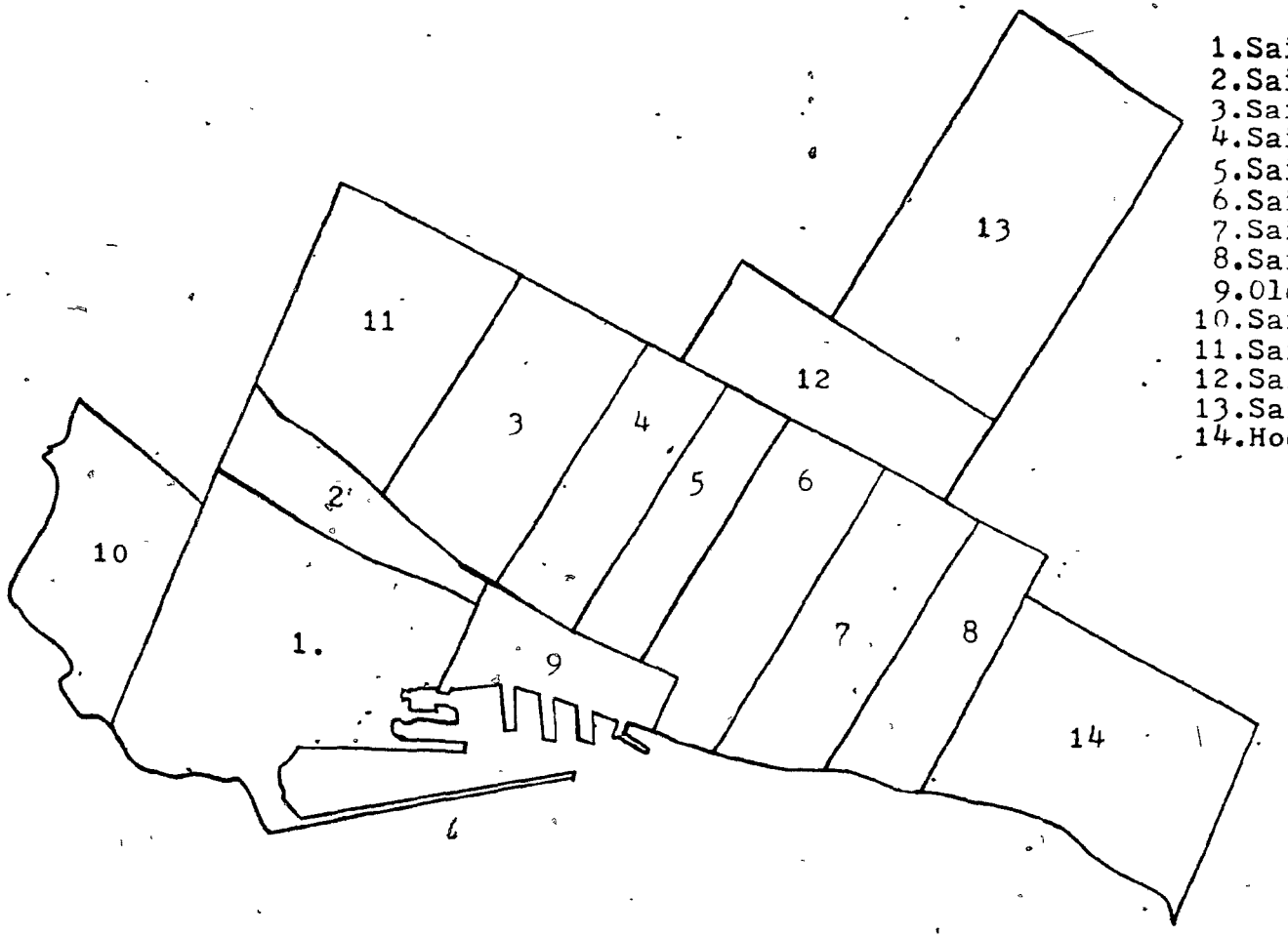
be addressed. What it has shown is that major occupational and class differences existed from an early date in Montreal and interacted with the development of the city's economy in such a manner as to produce a distinctive urban form.

Appendix 1 : Montreal's Wards in 1861



1. Sainte-Anne
2. Saint-Antoine south
3. Saint-Antoine east
4. Saint-Laurent
5. Saint-Louis
6. Saint-Jacques
7. Sainte-Marie west
8. Sainte-Marie east
9. Old Montreal

Appendix 2: Montreal's Wards in 1901



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