A Study of the Point St. Charles Shops of the Grand Trunk Railway in Montreal 1880-1917

by

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Abstract

This study concentrates on the choice of the site for the railway's Montreal terminus (and shops) in 1853, and on analyzing the Shops' payrolls for the period 1880-1917. The most important findings are:

The site chosen, at the head of the Victoria Bridge, was farm land purchased from four religious communities. It had been recommended in 1852 in an independent report based largely on its proximity to the water which would permit easy transshipment between rail and water transport.

The Shops were divided into the Motive Power and Car Departments; the former being mainly a metal-working area with anglophones strongly predominating, the latter a wood-working area with francophones predominating (from 1902 onwards).

Working hours in the Shops generally amounted to 7-1/2 to 9 hours per day or to 45 to 55 hours per week. The skilled metal workers usually earned more than the skilled wood workers.

The majority of the workers, including 90% of the anglophones, lived within two miles (3.2 km) of the Shops. Early in the period, 82% of the francophones did likewise but, by 1917, this had dropped to 55%.

Résumé

Cette étude porte le choix d'un site pour le terminus (et les ateliers) montréalais de la compagnie de chemin de fer en 1853, et sur l'analyse des états de paye des ateliers pour la période 1880-1917. Les conclusions les plus frappantes sont les suivantes:

Le site retenu, à l'extrémité du Pont Victoria se trouvait sur des terres agricoles et fut acheté à quatre communautés religieuses. Ce site avait été recommandé en 1852 dans un rapport indépendant, en raison notamment de sa proximité du fleuve, ce qui faciliterait le transbordement des marchandises entre le train et le bateau.

Les ateliers se divisaient en ateliers de locomotives et en ateliers de wagons, les premiers étant principalement une zone réservée à la métallurgie, où prédominaient les anglophones, les deuxièmes étant une zone de menuiserie à forte prédominance francophone (à compter de 1902).

Les ouvriers employés dans ces ateliers travaillaient entre 7-1/2 et 9 heures par jour, soit 45 à 55 heures par semaine. Les métallurgistes qualifiés gagnaient généralement mieux leur vie que les menuisiers qualifiés.

La majorité des ouvriers, notamment 90% des anglophones, vivaient dans un rayon de deux milles (3.2 km) des ateliers.

Au début de la période, 82% des francophones vivaient dans ce même rayon, mais dès 1917, leur proportion était tombée à 55%.

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Chapter One

Introduction

As the largest and most important city in Canada for much of the country's history, Montreal has always had a special relationship with, and been of special importance to, the two major railway systems. As their hub and the site of their head offices, it has supplied much of their vital requirements, and its importance has been further enhanced by the fact that the largest maintenance and repair shops of each system have always been located in Montreal.

While much has been written about Canada's railways, little attention has been paid to their shops. The reasons for this are understandable. While many of them are large industrial undertakings in their own right, in the larger context they are relatively small parts of very extensive, continent-wide railway systems. Thus, historians, economists and other scholars, in studying the development of the railways and their impact on the country's economy and development, have generally restricted their attention to the whole systems and have not given much consideration to the individual parts that make up the whole.

In their heyday in the steam locomotive era of the railways,

in addition to merely repairing and maintaining rolling stock, the railway shops of Montreal produced large numbers of new locomotives, passenger cars and freight cars. Thus, in their 65 years or so of ownership by the Grand Trunk Railway, the Point St. Charles Shops produced in excess of 400 locomotives, many passenger cars and some thousands of freight cars (Grand Trunk Railway's Half-Yearly and Annual Reports - cumulative figures), while, in their first five years of existence from 1904 to 1909, the Angus Shops of the Canadian Pacific Railway produced about 18,000 cars and locomotives (worth about $20,000,000) (Railway and Marine World, Toronto, 1910, 35). Therefore, as a result of their manufacturing activities, these shops were important well-springs leading to the honing of the talents and skills of the pool of skilled tradesmen and artisans in Montreal and to the building up of the technological abilities of the city's manufacturing industry.

Aside from their role and influence in the development of a corps of highly-skilled artisans, the railway shops had important impacts on the economy of Montreal and as general employers of labour. Regarding the former, in January, 1910, the Point St. Charles Shops, alone, paid out about $113,000 in wages to their crew of 2,525 hourly-paid men (Public Archives of Canada (P.A.C.), R.G. 30, Volume 2042, cumulative figures). On an annual basis, this is equivalent to a wage payout of $1,356,000 or to an average of about $537 per man. For comparison, in 1911, the salaries and

wages paid out by all the manufacturing industries of Montreal amounted to $34,300,000 or about $506 per man for each of their 67,841 employees. (Fifth Census of Canada 1911, Volume III, p. 353) Thus the importance of the Shops to the city can be appreciated when it is realized that the wages paid by this one organization amounted to 4% of those of the total manufacturing industry in the city.

Besides providing a useful check on the data obtained from two widely different sources, the two annual wages quoted above ($537 and $506) furnish a hint that, on the average, the Shops' men may have been more highly paid than those in general manufacturing industry. This would represent another benefit to the city in having a group of citizens with higher buying power.

As general employers of labour, between them the Point St. Charles Shops and the Angus Shops often employed 8,000 or more men. When all the dependants of these men are considered, it is most likely that 20,000 to 30,000 people owed their livelihood directly to the railway shops industry. If the suppliers to the railway shops are also considered, still more people can be seen as dependent on the shops. In 1910, Montreal had a population of about 520,000 people (Canada Year Book, 1911, pp. 7-8). Thus, possibly 5-10%, or a very significant portion of the city's population, was dependent on the presence of the two major

shops for its means of living, and the presence of the shops had a profound effect on the way that the internal geography of the city developed.

The Point St. Charles Shops were built between 1854 and 1856 by the Grand Trunk Railway, which was the first long-distance, 'trunk' railway in Canada. The Canadian Pacific Railway's Angus Shops were built about fifty years later, around 1904-1905. They were considerably larger, more modern and more extensive than the Point St. Charles Shops. This is understandable as they were built much later and they were designed to service a much more extensive organization which was expanding rapidly. However, as the first major shops and as a smaller organization, identified with a distinctive, well-bounded neighbourhood but less in the public eye, the Point St. Charles Shops offer more attractive possibilities as a subject for study than the Angus Shops. Thus, the present study, which will be partly of a geographical and partly of a non-geographical nature, will concentrate on the former.

The Thesis Questions

To study the 130-year old Point St. Charles Shops in a satisfactory manner requires, at the very least, tracing the history of their physical development; tracing the role that they played and how it changed over the years; tracing the impact of the Shops on the economy of Montreal and Quebec and how it changed and developed as time passed; and,

finally, analyzing the payroll data at different periods to determine wage structures and to find out about some of the social impacts of the Shops on their employees and the community. To carry out and report on such a study adequately, would far exceed the bounds of a single thesis. Thus, the present work is restricted to two phases of the larger study -- tracing the history of the acquisition of land for the Shops and analyzing available payroll data of the Grand Trunk Railway period of the Shops, up to about the end of the Great War.

Regarding the first phase of the study, it is intended to try to determine what considerations went into choosing the land for the Shops; to find out from whom the land was purchased and at what price; and to make an assessment of the railway's choice and, with the benefit of hindsight, try to determine how effective it was and what some of the consequences were.

Regarding the payroll analysis, the information that it should reveal includes such items as the hours of work that applied for typical trades (e.g. blacksmiths, machinists, carpenters and labourers), and wage rates and how they changed from time to time. The structure of the pay system, how earnings were calculated and how they differed between skilled trades or between skilled, semi-skilled and unskilled workers are matters of great interest. In addition, if earnings information is available for other

firms or industries in the Montreal area, it would be instructive to compare such outside data with those available for the Shops.

Aside from purely monetary data, it would be hoped that an analysis of the payrolls would yield information on the ethnic make-up of the Shops' work force at different periods and show if there was ethnic bias between trades or that affected men's earnings. The analysis should also reveal where the Shops' workers lived and how far they had to travel to work from their homes. Such residential data should show whether the men from the Shops tended to cluster in certain areas of the city, and if clustering was based on occupational classification or ethnicity. Regarding the latter possibility, it is recognized that certain areas of Montreal have long been basically anglophone or basically francophone. Also, there have been studies (e.g. Ames, 1897) that have inferred that the anglophones of 19th century Montreal were mainly fairly affluent and lived primarily on the slopes of Mount Royal, while the relatively less affluent francophone workers lived in poverty below. This payroll analysis and study of the Point St. Charles Shops workers should help in corroborating these general impressions or in refuting them and showing that other, strongly anglophone, working-class, residential areas, which were neither very affluent nor poverty-stricken, gradually developed on the low areas below the mountain. Finally it would be hoped that the payroll analysis would yield data

showing the stability, or persistence or rate of turnover, of the Shops' workers as regards both their job classifications and their dwellings.

It is anticipated that the findings from this research should be of value to scholars and other investigators and that they should help in filling in major gaps in the industrial history of Montreal.

Sources of Data

Regarding land transactions and acquisitions, the source of the data reported in this study was the records left by the notaries involved. For older transactions, such as those of around 1853, the notarial records are to be found in Les Archives nationales du Québec, 100 Notre Dame Street East, Montreal. For more recent transactions such as that of 1873, if the notary's records have not yet been transferred to Les Archives, they can be found in the Dépôt des greffes des notaires in the Palais de justice (the Courthouse), 1 Notre Dame Street East, Montreal.

With respect to payroll records, unfortunately a serious fire at the Point St. Charles Shops in March, 1875 destroyed most of the Grand Trunk Railway's records that had accumulated up to that time (The Evening Star, Montreal, March 9, 1875, pp. 2-3). The railway does not appear to have been very systematic in retaining records after the fire, as the only formal source of payroll records now available is a

series of Accounts Payable ledgers for the period from about 1902 to 1917, held by the Public Archives of Canada in Ottawa (P.A.C., R.G. 30, Vols. 2032 to 2058 and 7095 to 7218). These ledgers contain what are apparently complete Grand Trunk payroll records for the 16-year period. They are in good shape, and the data concerning the Point St. Charles Shops can be easily isolated and picked out. These ledgers were the prime source of the data for the 1902-1917 period.

A subsidiary source, containing data for the Car Department only, from about 1880 to 1898, turned up recently in a series of Workmen's Time Books that were discovered in an old building at the Shops. They are in relatively poor condition and record mainly hours worked rather than wages earned. These time books were the source of the data for the 1880-1898 period. They are held by Canadian National Railways, Record Servicentre, Montreal, but they will eventually be transferred to the Public Archives of Canada.

Preliminary Activities

As Table 2 indicates, the total crew in the Shops was generally 2,000 to 3,000 men. They were assigned to one or other of a number of separate trades or job classifications, some having as many as 100 to 200 or more men while others had as few as 10 men. (The mean size in 1910 was about 84 men per job classification.)

It had been thought initially that the total numbers of

individuals that would have to be included in any payroll analysis could be greatly reduced by using an appropriate sampling scheme. However, further consideration indicated that, for some purposes, such as estimating proportions, very large samples of perhaps 100 to 400 or more men would be required[1]. As these sample sizes were for very large populations (such as the entire population of a country) and, as the populations of the various Shops' job classifications were finite and only numbered in the hundreds or less, the indicated sizes could be reduced somewhat by the application of the appropriate correction factors. However, the additional consideration that any sampling of the data would automatically lead to reduced accuracy and representativeness of the findings, finally resulted in the decision being made not to attempt to do any sampling, but to work with the whole body of data as it appeared in the Accounts Payable ledgers and Time Books. This decision obviously greatly increased the work and time required to carry out the analysis, but it is hoped that the results obtained are correspondingly more realistic and representative than they otherwise would have been.

A second preliminary activity prior to commencing the payroll analysis was to confirm that, generally, the wage data conformed to expected statistical regularities. This was done by drawing a number of histograms to show the actual distribution of both gross earnings and hourly wage rates for a number of typical job classifications. From

these, by visual examination, it was clear that, while, in some cases, there was some departure from normality, in general, the data were more or less normally distributed. Thus, any statistical tests that might be applied during the analysis should be parametric, rather than nonparametric, tests.

Organization of the Thesis

The thesis is organized into seven chapters, the first and last consisting of the introduction and the conclusions, respectively. Chapter Two deals with the railway's acquisition of the land that it required in Montreal, while Chapter Three is concerned with ethnicity in the Shops. Hours of work, rates of pay and earnings are considered in Chapter Four. Chapter Five is devoted to a study of persistence among the Shops' workers. The large question of residential patterns of the Shops' crew and how they may have changed over the years, is considered in Chapter Six.

Footnotes

[1]According to the following equation (Ebdon, p. 48):

$$n = \frac{pq}{(SE\%)^2}$$

where n = sample size

p = the proportion concerned

q = 1-p

SE% = standard error

Assume $p = 50\%$

then $q = 1-p = 50\%$

and, if the acceptable range for the sample proportion = ±5%

then $SE\% = 5$ (for 0.682 probability)

and, therefore, $$n = \frac{50 \times 50}{5^2}$$

$$= \frac{2500}{25}$$

$$= 100$$

Or, for 0.954 probability,

$$2 \times SE\% = 5$$

$$\text{or} \quad SE\% = 2.5$$

and then $$n = \frac{2500}{2.5^2}$$

$$= 400$$

Thus, depending on the rigidity of the conditions applied, sample sizes of 100 to 400 men would be required to obtain meaningful results. These are obviously larger than the mean size of the job classifications and, in some cases, exceed the sizes of the largest groups of men in the Shops.

Chapter Two

Acquisition of the Land for the Montreal Terminus

As with most industrial undertakings, the location of a railway's main facilities in any town or city was of great importance as it could have a strong bearing on the town's growth pattern, on the efficiency of the railway's operations, on the service it could render to its customers and on the ease of hiring and retaining workers for the intended facilities. These considerations were even more important when the town concerned was the railway's main terminal city and it was realized that the facilities provided initially would be present in the same location for many years into the future. In this chapter, the question of where the main Montreal facilities should be located and the site that was actually chosen are considered. We shall see that, while there was some geopolitical skirmishing, in the main the decisions were based on sound engineering and economic principles. No particular interested group benefitted unduly, the major beneficiaries of the decision being the religious communities that sold the land and the eventual residents of the suburb that sprang up around the railway's terminal facilities.

Background

The Grand Trunk Railway Company of Canada was incorporated by act of Parliament on November 10, 1852 (Currie, 1957, p. 12). For several years prior to that date, contending and competing groups of politicians, developers and contractors had struggled to have their own particular schemes adopted for providing the Province of Canada with main-(or trunk-) line railway service. However, eventually, either through the logic of the situation or because one or other of the contending parties had managed to catch the ear and interest of the Canadian Government, all the groups had to come together and act in concert. The result was that, by the end of the 1852-53 parliamentary session, additional legislation had been passed providing for the building of an 1,100 mile railway system that would connect Sarnia in Canada West to Rivière du Loup in Canada East and to the ice-free port of Portland, Maine, in the United States. The St. Lawrence River would be bridged at Montreal as an integral part of the scheme (Ibid., pp. 11-15).

During the pre-1852 period, a number of different routes had been suggested for the proposed railway west of Montreal, but no real consensus had been reached by the interested parties. Some promoters, in pursuit of their own self-interest, favoured routing it from Montreal to Kingston via Bytown (Ottawa) and Perth, while others wanted to follow the St. Lawrence River through Brockville (Ibid., p. 24). Similarly, as late as the end of January, 1852, no firm

decisions had been reached as to the location of the line's terminus in Montreal or even where the proposed bridge at that city would be constructed. However, engineering investigations into these problems were in hand, as is shown by the following report, dated January 30th, 1852 and entitled Report upon the Preliminary Survey of the Montreal and Kingston Section of the Canada Trunk Railway, from Mr. Thos. C. Keefer to the Honorable John Young, Chairman of the Executive Committee for the Promotion of a Railway between Montreal and Kingston (P.A.C., R.G. 12, Vol. 2015, File 3556- 62).

Keefer Report of 1852

In the discussion concerning the Montreal terminus in this report, Mr. Keefer was primarily concerned with handling freight in the most efficient manner and in providing for direct communication and transshipment between rail and water transport. He considered three possible locations for the terminus: on the north bank of the Lachine Canal; on unoccupied land east of Montreal below the St. Mary's Current; and on unoccupied land between the Lachine Canal and the river in the Point St. Charles area of St. Ann's Ward at the west end of the city.

Regarding the first, Keefer visualized that, with the terminus on the north bank of the canal, the latter would be, in effect, an extension of the harbour. Thus, vessels could easily come alongside rail facilities for the

efficient transshipment of cargo and goods. Finally, however, he rejected this location for five reasons: because the rail line to the terminus would have to cross busy St. Joseph Street; because the terminus would be too close to Griffintown [the Irish, working-class area], and therefore it would be exposed to the danger of serious fires; because the canal was too narrow to give enough wharf room; because larger and larger ships would not have access to the terminus due to the limiting dimensions of the canal locks; and because an accident in the canal could greatly affect the operations of the terminus.

Concerning the second possibility (locating the terminus east of Montreal), Keefer rejected this idea as he considered that no-one would want to have the railway cutting through the whole breadth of the city in order to reach the site. It is noteworthy that he apparently did not consider running the railway line through the unoccupied country behind Mount Royal in order to reach this eastern location, as the C.P.R. was to do 33 years later to gain access to its original Montreal terminus near Place Viger.

Thus, Mr. Keefer was left with only his third alternative: the area of Point St. Charles, south of the Lachine Canal and probably west of the intended location of St. Etienne Street (now Bridge Street). The latter did not exist in 1852, the whole area being farm land. As it turned out, this was the area that he strongly favoured for the terminus as

it was unoccupied (except for its farm-related functions), and, being above, rather than below, the harbour, it would make an excellent bridgehead for the St. Lawrence River bridge. Once the latter was built, a terminus at Point St. Charles could serve traffic coming from both east and west. Also, by undertaking a major wharf development on or at the foot of the adjacent Point St. Charles shoals immediately east of the bridgehead, a railway terminus in this area could provide the necessary service to deep-water shipping very effectively.

As stated, Keefer's main concern was to provide for the easy transshipment of goods between rail and water facilities. He was not concerned with the efficient handling of passengers and, in fact, he suggested that it might be best for the trunk railway to share the use of the Lachine Railroad's passenger facilities in the centre of Montreal on St. Bonaventure Street.

Keefer was also not concerned with finding the best location for the railway's shops facilities, as such. He never referred to them separately or singled them out for special consideration, obviously looking upon them as being a normal part of a railroad terminus when he wrote in the report:

> The unoccupied ground bounded by the Lower Lachine Road, the Board of Works property, and the river affords an admirable site for all the establishments connected with a Railway Terminus.

In making his recommendations to locate the terminus in this

Point St. Charles area, which was, of course, on the western outskirts of the city, Mr. Keefer does not appear to have been influenced by the probable lower land values in the area as compared with those in the built-up centre of Montreal. Of course, he may have taken this factor into consideration without saying so, when reaching his conclusions. In general, once the formal design and planning for the Grand Trunk Railway started in earnest after it was incorporated, the line seems to have made a practice of not forcing its way into the centre of existing communities, as Currie (pp. 26-27) notes:

> It missed the centres of towns, running south of Oshawa, north of Cobourg, Belleville, Napanee and so on. . . . The location of the railway line and stations on the outskirts of towns had only one advantage. It reduced the cost of land.

Thus, even if Keefer was not concerned with land values, someone else in the railway organization was undoubtedly well aware of them and gave them due consideration.

In this connection, it should be realized that, in building the railway's facilities on the relatively unbuilt outskirts of towns, the Grand Trunk Railway was only following a policy that would also be followed by the Canadian Pacific Railway 50 years later when it built its Angus Shops on a large tract of unoccupied, former farm land at the east end of Montreal. Being unoccupied, building there did not create a serious dislocation for the community and, as the property met other criteria of site desirability, it was the obvious site to choose if large savings could be realized in land

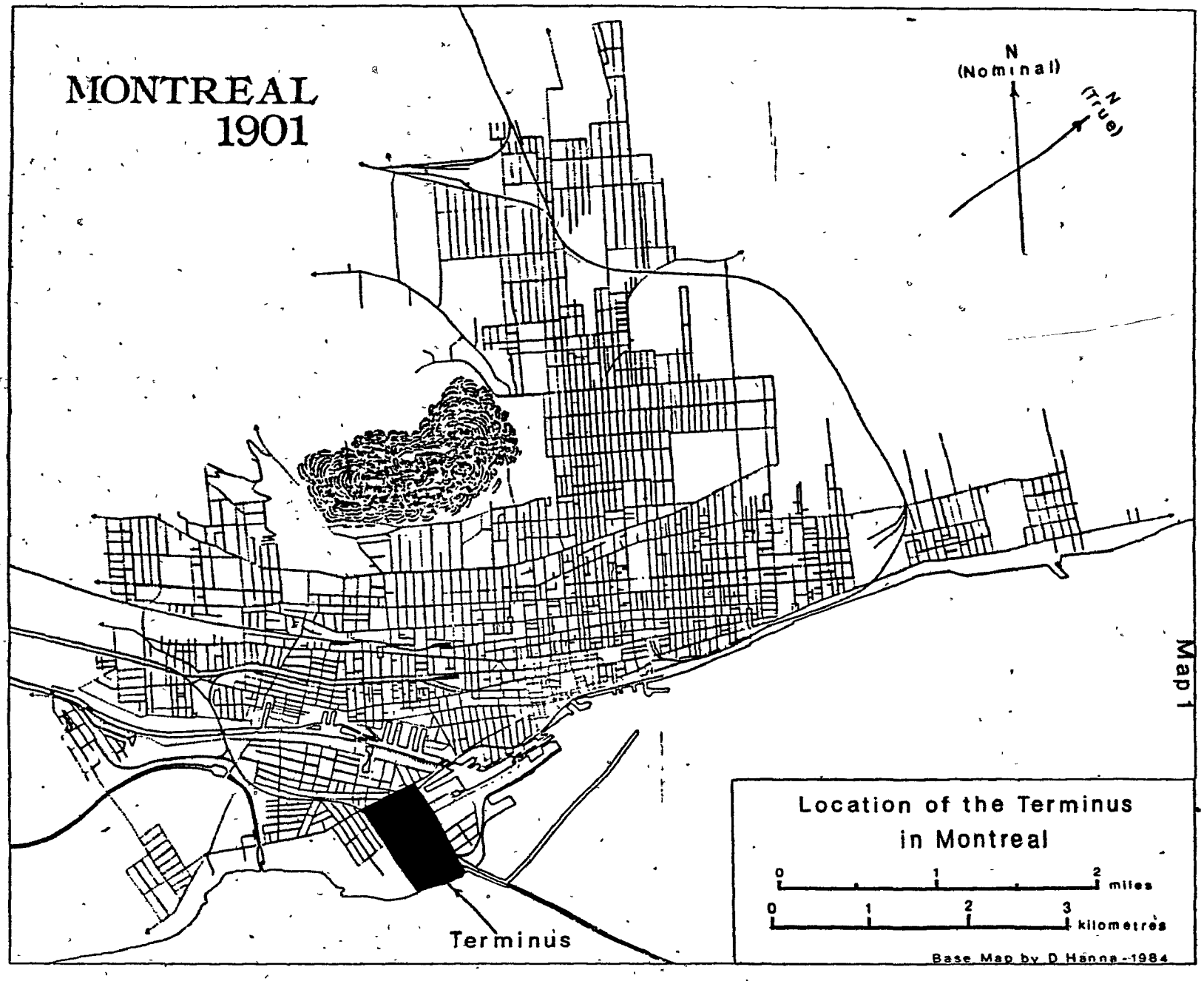
costs.

Acquisition of the Land

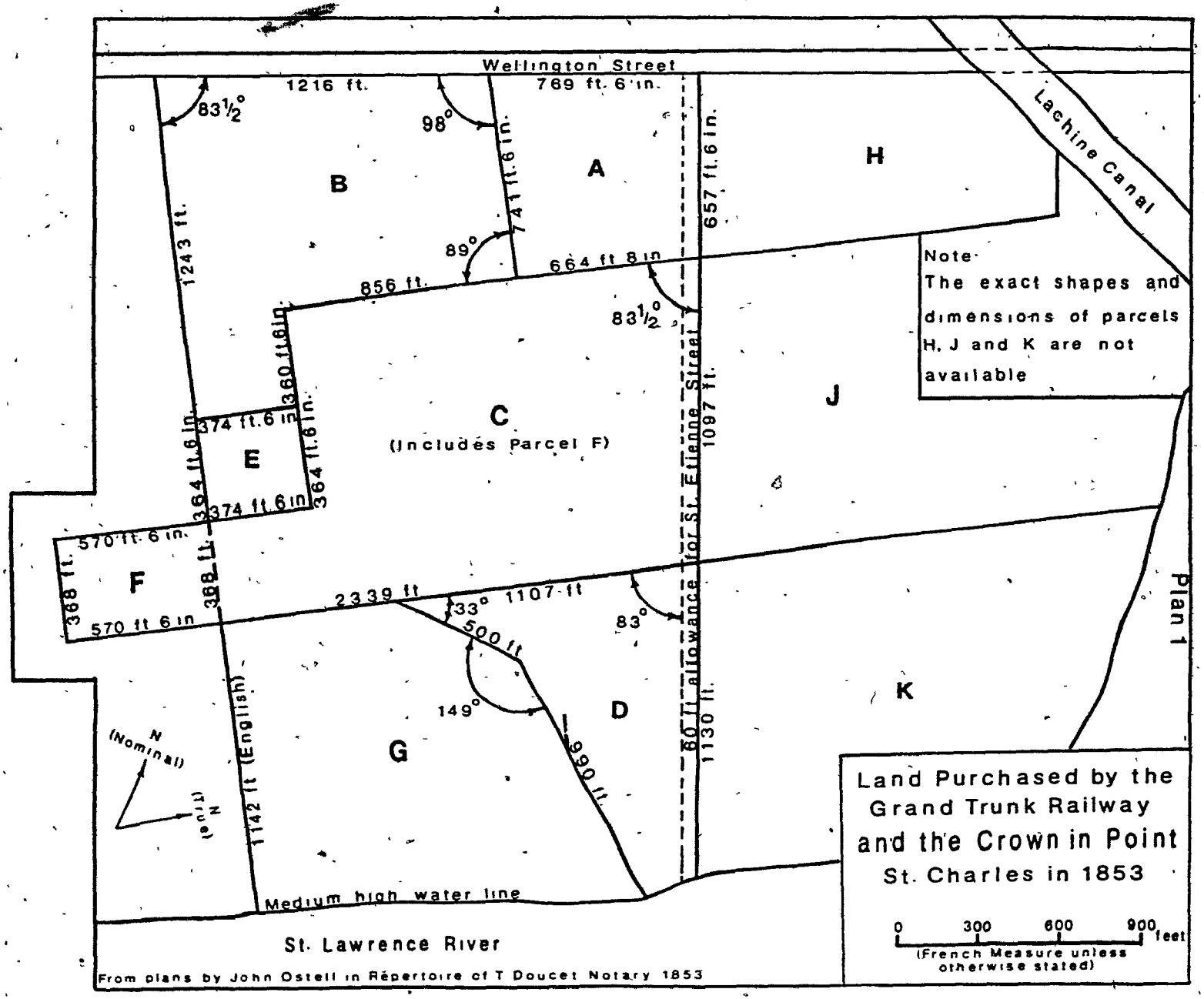
The Grand Trunk Railway bought most of the land needed for its Montreal terminus on December 31, 1853, a little over a year after it had been incorporated and almost two years after Mr. Keefer's report had been issued (Répertoire of Théode Doucet, Notary, 1853). Nothing is known about the considerations that the railway's management actually took into account in deciding where to build in Montreal, but the land that was finally purchased was exactly the land that Mr. Keefer had favoured and recommended as the site for the terminus (see Map 1).

As shown in Table 1 and on Plan 1, the vendors of the land were four religious communities, Les Ecclésiastiques du Séminaire de Saint Sulpice de Montréal, Les Soeurs de la Congrégation de Notre Dame de Montréal, The Religious Ladies of the Hôtel Dieu Nunnery and the Community of the Sisters of Charity of the General Hospital of Montreal (the Grey Nuns), all of which had, for many years, owned farms in the Point St. Charles area.

Prior to the sale to the Grand Trunk, three of the communities - the Sulpicians, the Hôtel Dieu Nuns and the Grey Nuns - had already sold portions of their lands to the Crown (on August 23, 1853) (Ibid.). These portions all lay to the east of the land sold to the Grand Trunk, as


MONTREAL
1901
N
(Nominal)
N
(True)
Terminus
Location of the Terminus
in Montreal
0 1 2 miles
0 1 2 3 kilometres
Base Map by D Hanna - 1984

Map 1


Wellington Street
1216 ft.
769 ft. 6 in.
83½°
98°
B
A
H
Lachine Canal
1243 ft.
74 ft. 6 in.
657 ft. 6 in.
89°
664 ft 8 in
856 ft.
83½°
Note
The exact shapes and dimensions of parcels H, J and K are not available
360 ft. 6 in.
374 ft. 6 in.
364 ft. 6 in.
C
(Includes Parcel F)
J
1097 ft.
E
374 ft. 6 in.
364 ft. 6 in.
570 ft. 6 in.
388 ft.
F
388 ft.
2339 ft
33° 1107 ft
83°
570 ft 6 in
500 ft
Plan 1
149°
D
K
60 ft allowance for St. Etienne Street
1130 ft.
(Nominal)
N
(Actual)
N
1142 ft (English)
G
990 ft.
Medium high water line
St. Lawrence River
From plans by John Ostell in Répertoire of T Doucet Notary 1853
Land Purchased by the Grand Trunk Railway and the Crown in Point St. Charles in 1853
0 300 600 900 feet
(French Measure unless otherwise stated)

LAND TRANSACTIONS SOUTH OF WELLINGTON STREET AND WEST OF THE ENTRANCE TO THE LACHINE CANAL IN MONTREAL INVOLVING THE GRAND TRUNK RAILWAY AND THE CROWN IN 1853 AND 1873

TABLE 1

Parcel	Date	Purchaser	Vendor	Notary	Deed No.	Area*		Price per Arpent	Total Cost
						French Measure	Equivalent SI Units**	In Pounds Unless Shown in Dollars	
A	Dec. 31, 1853	Grand Trunk R.R.	Les Ecclésiastiques du Séminaire de Saint Sulpice	T. Doucet	6512	14 arpents 21 perches	4.86 ha	5.10	7,105
B	Dec. 31, 1853	Grand Trunk R.R.	Les Soeurs de la Congrégation	T. Doucet	6513	34 arpents 63 perches	11.84 ha	250	8,658
C	Dec. 31, 1853	Grand Trunk R.R.	Hotel Dieu Nuns	T. Doucet	6514	57 arpents 73 perches	19.74 ha	250	14,686***
D	Dec. 31, 1853	Grand Trunk R.R.	Grey Nuns	T. Doucet	6515	15 arpents 58 perches	5.33 ha	250	3,895
E	Dec. 31, 1853	Grand Trunk R.R.	Grey Nuns	T. Doucet	6515	4 arpents 21 perches	1.44 ha	250	1,053
F	Dec. 31, 1853	Grey Nuns	Grand Trunk R.R.	T. Doucet	6515	6 arpents 48 perches	2.22 ha	250	(1,620)
G	Dec. 10, 1873	Grand Trunk R.R.	Grey Nuns	W. de M. Marler	129	40 arpents 6 perches	13.71 ha	$1,797.04-1/2	$72,960
H	Aug. 23, 1853	The Crown	Gentlemen Ecclesiastics of Saint Sulpice	T. Doucet	6213	20 arpents 51 perches	7.01 ha	500	10,255
J	Aug. 23, 1853	The Crown	Hotel Dieu Nuns	T. Doucet	6215	35 arpents	11.97 ha	400	14,000
K	Aug. 23, 1853	The Crown	Grey Nuns	T. Doucet	6216	34 arpents	11.63 ha	400	13,600

* - With the road allowance for St. Etienne Street deducted (re parcels 'A', 'C' and 'D')

** - 1 arpent = 0.342 ha

*** - Grand Trunk had to pay for half the road allowance at 250 pounds per arpent

indicated by the table and plan. The net result of these transactions was that, by the end of 1853, the railway owned all the land along the west side of the road allowance for St. Etienne Street below Wellington Street, while the Crown owned all the land along the east side. Two of the religious communities, Les Soeurs de la Congrégation and the Grey Nuns, continued to own the land bordering the west side of the Grand Trunk property. The railway was required, by terms of the deed of sale with the last-named group, to push St. Etienne Street through and then to provide and maintain a 24-foot road and crossing from St. Etienne, across parcel 'D' on the plan, to the remaining Grey Nuns' property, so as to give the nuns access to it from the street.

The land that the railway bought in 1853 amounted to about 120 arpents (41 ha). One final large parcel ('G' on the plan), containing about 40 arpents (14 ha), was bought from the Grey Nuns 20 years later, on December 10, 1873 (Répertoire of W. de M. Marler, 1873), thus bringing the Grand Trunk's early major land acquisitions in the Point St. Charles area to a total of about 160 arpents (55 ha). With this purchase, the railway's obligation to keep open the access road to the Grey Nuns' land was cancelled.

As has been mentioned, the land needed for the Shops was not considered separately from that needed for the terminus as a whole. The Shops' buildings, proper, only occupied about 20% of the total area purchased and thus, for many years, the

Shops, while a major employer of labour, were not a major user of the space in the area. This gradually changed, of course, as, first, the passenger terminal was moved to St. Bonaventure Street and then, eventually, other large additional spaces were secured and developed as general railroad yards (such as the Turcot Yard about 1903) (G.T.R. - Verbatim Report of the President's Speech. . . held . . . on Friday 8th October, 1903, p. 12). With these changes, the Point St. Charles area could no longer be considered to be the terminus but became, more and more, simply the location of the Grand Trunk's major shops, with incidental yards outside.

Table 1 contains information regarding the prices paid for the Point St. Charles land. As will be seen, they varied from £250 to £500 per arpent in 1853. In general, the Sulpicians received £500 per arpent whether they were selling to the Crown or to the railway, but the various orders of nuns received £400 per arpent when selling to the Crown but only £250 per arpent when selling to the railway. It is difficult to find justifications for these differences unless they simply reflect the politics of the situation, reinforced by the relative bargaining and negotiating skills of the various people involved. It might be claimed that the Sulpician land was worth more as it was on the main thoroughfare, Wellington Street, and it was also at an eventual intersection (with St. Etienne Street), while parcel 'H' was also on the Lachine Canal. However, following

this reasoning, the price of parcel 'B', also on Wellington Street, should have been higher than the prices for parcels 'C' and 'D', say, which, at £250 per arpent, it certainly was not.

If the prices in sterling are converted to dollars (using the exchange rate of $4.87 per pound, which seems to have been stable for long periods in the 19th century) (G.T.R. London Directors' Half-Yearly Report for December 31, 1861, p. 16), the unit prices shown in Table 1 become:

Price per Arpent			Equivalent Unit Price	
Sterling		Dollars	Per Sq. Foot	Per Sq. Metre
£500	=	$2,435	6.6¢	$0.71
£400	=	$1,948	5.3¢	$0.57
£250	=	$1,218	3.3¢	$0.36

These prices can now be compared with the price paid ($1,797 per arpent) for parcel 'G' in 1873. As is obvious, in the 20-year period between 1853 and 1873, there was an increase of almost 50% in the value of land bought by the railway. This probably reflects the increase in the value of land during the period due to other building for residential or manufacturing purposes in the area.

Assessment of the Point St. Charles Purchase

If length of tenure is any indication, the original choice of the Point St. Charles area for the terminus represented a successful move by the Grand Trunk Railway, as it (or its successor, Canadian National Railways) is still there and,

133 years later, is still actively using the land purchased in 1853. As noted above, the railway expanded into other areas of Montreal as its needs expanded, but the Point St. Charles land still serves a purpose for its operations.

It is of interest to note that one of the main considerations upon which Mr. Keefer originally based his recommendation to acquire this land - the necessity of providing for easy communication and transshipment between rail and water transport - was never realized near the Point St. Charles terminus. No action was ever taken regarding developing wharves on the Point St. Charles shoals, as envisaged by Keefer. Instead, the railway merely extended its lines from the Point St. Charles complex along the water front, as can be detected on Map 1, thus enabling it to provide service to the various wharves in Montreal harbour. As the number of wharves gradually increased, moving downstream from the upper harbour, it was a simple matter to increase the length of these branch lines so as to continue to provide the efficient service needed for handling cargo to and from ships alongside the wharves.

In at least one respect - the susceptibility of the Point St. Charles land to flooding in the spring - the 1853 choice was not a good one, especially in earlier years. Serious floods occurred at least in 1861, 1885 and 1886, six feet of water being present on the railway's Point St. Charles property for a few days in the latter year (G.T.R.

Half-Yearly Reports of 30th June, 1885, pp. 25 and 35, and of 30th June, 1886, p. 22). However, while such events could be annoying and disruptive, they were relatively unimportant over the long term, especially after the City of Montreal decided to build a dike along the river front (Verbatim Report of the President's Speech . . . on 30th October, 1888, p. 16). The diking that was done was apparently successful as the Point St. Charles area is not included on flood risk maps showing the areas around Montreal that may experience the occasional disastrous flood (Flood Risk Map, Caughnawaga Sheet 31H5-100-0303).

The choice of Point St. Charles for the railway's terminus undoubtedly affected the nature of the eventual development of the whole district. In conjunction with the large number of factories that were being attracted to the area by the water power available from the Lachine Canal, it probably contributed strongly to the general impression of this being an industrial area. Thus, people in search of better residential areas would have avoided it. However, the fact that, when the Grand Trunk entered the area in the 1850s, the surrounding land was largely unoccupied, meant that there was plenty of land for residential development. This development resulted in working-class living areas springing up near the railway land but they were areas throughout which many semi-skilled and highly skilled, fully-trained tradesmen from the near-by factories and railway operations were sprinkled. This undoubtedly contributed to the

development of a fairly stable community which was made up of people who were proud of its traditions, looked upon it as home and, possibly, tried to maintain higher standards than might have been expected for typical working-class residential areas of the period.

Another way in which the Point St. Charles area may have differed from other working-class residential areas of Montreal was that, reflecting the mixed anglophone/francophone make-up of the payrolls of the factories and firms in its midst, there tended to be a mixture of these two ethnic groups throughout its living areas. It is true, as will become apparent later in this study, that there were neighbourhoods in the area that tended to be mainly anglophone or francophone, but there were also others in which there was a fair degree of mixing of the two groups.

If, instead of setting up its terminal facilities in an unoccupied area such as Point St. Charles, the railway had chosen an already built-up area closer to the centre of Montreal, it is probable that its surroundings would have developed in an entirely different manner than the way in which those in Point St. Charles developed. With little or no near-by unoccupied land available for development, the growth of contiguous residential communities would have been very restricted or impossible. Thus, the railway's employees would have been spread out over a much larger area of

Montreal, and there would have been no near-by, homogeneous, tightly-knit community of people with similar interests and standards, as eventually came to exist in Point St. Charles and its surrounding areas.

Thus, considering everything, the original choice of the Point st. Charles area for the Grand Trunk terminus was a happy one for both the railway and the long-term development of this portion of Montreal.

Chapter Three

Ethnicity in the Shops

A glance at any of the Shops' payrolls during the study period from 1880 to 1917 reveals that they were made up, primarily, of anglophone and francophone names. This immediately raises the question as to how the men of these two ethnic groups were distributed over the various job classifications. Were these workers distributed more or less evenly over all the classifications irrespective of ethnic background, or were there classifications in which there was an obvious preponderance of one group or the other? Is there any indication that one group tended to dominate the higher paying classifications and the other was found mainly in the lower-paying jobs, or were the members of each group present in most or all of the job classifications in much the same proportions as they were in the overall Shops' crew? With respect to the latter question in particular, bias in job assignment might seem to have been a realistic possibility as the Grand Trunk Railway was basically an English company with an English-speaking management. It might have tended to favour anglophones over francophones with the result that they might have been clustered mainly near the top end of the wage scale while the francophones might be found mainly at the lower levels. In this chapter, the various payrolls are analyzed to find out if there was any bias in the

distribution of men over the various occupations or if there were any trends discernible that might indicate changing attitudes toward ethnicity as time passed.

Review of the Literature

The smaller and the fewer the differences between people, the less is the tendency for discrimination to develop or for people to segregate themselves from others. This is born out by the experience in American industry up to about 1880 when the industrial work-force was fairly homogeneous, most of the workers being of native-American, English, Irish, Scottish or German origin. During this period reasonable numbers of these various ethnic groups were to be found throughout the different job categories of most industrial plants. Thus, in the iron industry in Troy, New York, while the Irish occupied about 55% and 40%, respectively, of the highly-skilled moulding and puddling jobs, they also held about 67% of the unskilled labouring jobs. There was also a good representation of English and native-born workers in all of these same categories (Walkowitz, 1978, pp. 31-33).

Much the same situation was in evidence in the steel industry in Steelton, Pennsylvania, where representatives of all the ethnic groups that made up the total work-force were found at all occupational levels and classifications. The split of the native-American group (60% in unskilled jobs, 18% in semi-skilled and 22% in skilled or non-manual work) was typical of how most of the groups were distributed

(Bodnar, 1977, p. 63). In general, in this pre-1880 period, people were accepted by employers and assigned to job classifications based on their skills and knowledge rather than on their ethnic backgrounds.

However, this started to change in the last quarter of the 19th century when the stream of immigrants entering the United States began to contain large numbers of French-Canadians and people from the countries of Central and southeastern Europe. In general, all of these people were relatively unschooled, were from an agricultural background and had had little or no industrial experience and thus had few industrial skills. Also, they were non-English-speaking and did not integrate well or easily into an English-speaking world.

The French-Canadians were in the vanguard of this movement, migrating into the northeastern United States and finding work in the textile industry, in particular. However, experience eventually showed that they only fitted in to the less-skilled jobs with few of them succeeding in reaching the important, highly-skilled, weaving, spinning and dressing/carding jobs which came to be dominated by the English and Irish workers. As a result of these developments, the homogeneity of the work-force in the textile mills was destroyed, being replaced by two groups (the French-Canadians and the English/Irish) which tended to keep to themselves and not to mix (Walkowitz, p. 74).

Similarly, in heavy industry, such as the steel mill at Steelton, the original homogeneous work-force came to be replaced by one splintered into numerous ethnic minorities, each often becoming dominant in some particular area or department of a mill. Thus, at Steelton, the open-hearth furnace department became the preserve of Croatians, the blast furnaces were dominated by Serbians (and blacks), the labour gang of the plant railroad accepted only Bulgarians, the frog and switch department (which involved skilled work) was filled with native-Americans while the car and locomotive repair shops (which also, of course, involved skilled work) were staffed mainly by white, Anglo-Saxons (Bodnar, 1977, pp. 36-37).

Thus, in this period when the North American industrial work-force was becoming less homogeneous and more broken into ethnic groups, a pattern began to emerge of the better-educated, better-trained, English-speaking, Anglo-Saxon (or anglophone) group generally occupying the more highly-skilled and better-paying jobs while the less-educated, less-trained, non-English-speaking, ethnic groups were concentrated at the lower-levels. It could be said, of course, that these divisions came about simply as a result of the differences in skills possessed by various people and groups and that those possessing the higher skills naturally found their way to the top. This is basically true but when these skill differences were reinforced by ethnic differences, the latter tended to

become the criterion that decided the level at which the members of various ethnic groups were fitted into industry.

In Montreal, marked differences in training, skills and aptitude for industrial work between the anglophone and francophone groups had long been present. Many of the anglophones, through their own experiences and those of their forbears, had the advantage over the francophones of 100 to 150 years of prior exposure to the industrial world and its industrial processes, and the philosophy and habit of thought that accompanied them. Also, practically all the large industrial plants (especially of the heavy industry type) that were established in Montreal between 1850 and 1920 -- railway shops, locomotive works, bridge companies, steel foundries -- were founded by English-Canadian business interests, staffed with English-speaking managements and supervisory staffs (including foremen) and peopled with trained and highly-skilled English-speaking tradesmen and workers, often recruited for the purpose direct from the British Isles (Reynolds, 1935, p. 93).Thus the stage was set for anglophone dominance of the skilled trades such as boilermakers, blacksmiths, machinists and others in the larger industrial enterprises. This dominance was reinforced by the operation of apprenticeship schemes set up by the larger organizations for their more important trades, the majority of the boys taken into these schemes being anglophone. Thus, at least until 1920, the majority of the skilled tradesmen in most large industrial organizations in

Montreal tended to be anglophone. This, it will be noted, was repeating the pattern that was becoming common in the United States of the more highly-skilled, and therefore better-paying, jobs being predominantly filled by anglophones.

There was,however, in the Montreal area, a major exception in that the carpentry and painting trades came increasingly to be dominated by French-Canadians to the extent that, by 1931, less than about ten percent of the workers in these two trades were anglophones (Ibid., p. 104). This was, of course, beyond the study period of the present investigation but indications of the tendency for fewer and fewer anglophones to become carpenters and painters (or to try to find work in these two trades) in Montreal must have been obvious for some years before 1931.

In summary, therefore, based on the work of previous investigators, we should expect to find that, for the more highly-skilled jobs at least, the workers in the Point St. Charles Shops were predominantly anglophone. For the carpentry and painting trades, however, there should be evidence of strong tendencies for anglophones to be displaced more and more by francophones as the study period progressed.

Methodology

The criterion used in this study to assign workers to either

the anglophone or francophone category was their surname. It might have been better and surer, of course, to have used both their Christian name and surname. However, in most cases, the Christian name was not available, usually only a single initial being shown in the payroll records. In addition, there was sometimes a question when, on occasion, an English Christian name was shown and it was linked with a French surname (e.g. John Belanger), whether that was really the man's name or whether it had been Anglicized by an anglophone clerk or foreman when hiring the man and entering his name in the records. Thus, not too much faith was placed in Christian names for the purpose of judging ethnicity, even when they were available.

In general, English and French surnames are quite distinctive and, for an anglophone who has lived in Quebec for years, it was quite easy to run down a list of names and assign each to one category or the other. There were always doubtful cases which were settled by reference to the current Montreal telephone directory for help in deciding whether a name was basically English or French. Names like 'Martin' or 'Raymond', that have the same spelling in both languages, were assigned to an 'Uncertain' category. Names that were patently neither English nor French were assigned to an 'Other' category. The Uncertain category never amounted to more than a few percent of the total. The Other category was generally small early in the study period but became quite substantial, in some cases, toward the end.

Basing ethnicity on surnames undoubtedly leads to some errors of assignment. There probably were, in the payrolls, cases of genuine anglophones who had French names and were therefore assigned as francophones and genuine francophones with anglophone (especially Irish or Scottish) names who were assigned as anglophones. However, these cases would tend to cancel each other out. There are, possibly, other methods such as trying to compare the payroll lists with church records, water tax records and census records (when available) that might have yielded more accurate and precise data. However, all these other methods would have been very time-consuming and, perhaps, no more conclusive. It is believed that the method used was adequate for the purpose intended, as long as no great store is set on the absolute values of the numerical data obtained. These data should be interpreted as relative, indicating the differences in the general proportions of anglophones, francophones and Others among the various groups of workers.

The numbers of men found in the various categories for each of the 25 main trades, which represented from 72% to 84% of all the hourly-paid workers in the Shops, were totalled and are presented in Tables 2 and 3. The former covers the whole Shops at eight-year intervals from 1902 to 1917, and the latter covers the Car Department, only, also at eight-year intervals, from 1880 to 1896.

The organization of the tables reflects the general

ETHNIC DISTRIBUTION OF THE HOURLY-PAID WORKERS IN THE POINT ST. CHARLES SHOPS - 1902 to 1917

TABLE 2

Job Classification	January, 1902					January, 1910					December, 1917				
	Total Men	Proportion of				Total Men	Proportion of				Total Men	Proportion of			
		A %	F %	U %	O %		A %	F %	U %	O %		A %	F %	U %	O %
Motive Power Department															
Machinists	160	86	5	3	6	260	86	7	2	5	197	75	14	5	7
Machinist's Assistants	75	79	16	1	4	209	72	7	2	18	200	53	20	3	25
Machinist Apprentices & Improvers	68	79	12	3	6	126	83	14	2	2	154	60	34	2	4
Machinists' Sector	303	83	9	3	6	595	81	8	2	9	551	63	22	3	13
Boilermakers	29	90	7	-	3	30	80	13	-	7	20	75	20	-	5
Boilermaker's Assts.	94	68	29	1	2	102	69	22	3	7	82	43	43	1	13
Boilermakers' Sector	123	73	24	1	2	132	71	20	2	7	102	49	38	1	12
Blacksmiths	29	83	14	3	-	25	92	8	-	-	16	81	13	6	-
Forgemen & Assistants	13	77	23	-	-	13	77	23	-	-	10	80	20	-	-
Blacksmith's Assistants	79	53	38	3	6	73	66	23	4	7	61	51	39	-	10
Blacksmiths' Sector	121	63	31	3	4	111	73	20	3	5	87	60	32	1	7
Carpenters	16	63	37	-	-	32	69	28	3	-	34	65	24	3	9
Painters	-	-	-	-	-	39	64	21	3	13	25	68	20	-	12
Carpenters & Painters	16	63	37	-	-	71	66	24	3	7	59	66	22	2	10

(continued)

TABLE 2 (continued)

Moulders	60	40	53	2	5	66	36	55	5	5	45	36	51	11	2
Fettlers & Labourers	39	33	64	-	3	38	21	26	-	53	30	20	7	-	73
Foundry Sector	99	37	58	1	4	104	31	44	3	22	75	29	33	7	31
Rolling Mill excluding Labourers	35	80	17	3	-	28	57	36	4	4	35	23	40	-	37
Rolling Mill Labourers	32	63	34	3	-	41	27	29	-	44	48	8	17	-	75
Rolling Mill Sector	67	72	25	3	-	69	39	32	1	28	83	15	27	-	59
Machine Men	83	74	18	1	7	100	81	12	-	7	87	66	10	-	24
Misc. Skilled (Metal) Tradesmen	43	74	23	2	-	50	70	28	-	2	61	62	31	2	5
Labourers	128	55	32	5	9	163	26	6	2	67	179	10	6	-	84
Total M. P. Department	983	69	24	2	5	1395	66	16	2	17	1284	49	22	2	27
Car Department															
P. C. Carpenters	-	-	-	-	-	153	29	57	1	13	96	31	55	1	13
F. C. Carpenters	-	-	-	-	-	227	44	43	6	7	177	20	55	4	21
All Carpenters	263	32	65	1	3	380	38	48	4	10	273	24	55	3	18
P. C. Painters	94	31	64	3	2	67	30	61	3	6	43	23	72	2	2
F. C. Painters & Painter's Assistants	29	21	79	-	-	38	29	71	-	-	54	30	61	4	6
All Painters	123	29	68	2	2	105	30	65	2	4	97	27	66	3	4

(continued)

TABLE 2 (continued)

Misc. Skilled (Metal) Tradesmen	29	83	14	-	3	48	83	13	2	2	61	77	18	-	5
Wood Machine Men	29	41	55	3	-	32	41	53	6	-	26	31	62	-	8
Iron Machine Men.	24	50	38	8	4	26	62	27	8	4	26	73	23	-	4
Labourers	93	46	47	4	2	118	57	31	3	9	115	28	37	2	34
Total Car Department	561	37	58	2	2	709	44	45	4	8	598	33	48	2	17
Total Whole Shops	1544	57	37	2	4	2104	59	26	3	14	1882	44	30	2	23
Total Crew- Whole Shops	1842					2525					2544				
Proportion included	84%					83%					74%				

A = Anglophones

F = Francophones

U = Uncertain

O = Others

ETHNIC DISTRIBUTION OF THE HOURLY-PAID WORKERS IN THE CAR DEPARTMENT OF THE POINT ST. CHARLES SHOPS - 1880 to 1896

TABLE 3

Job Classification	February, 1880					January, 1888					February, 1896				
	Total Men	Proportion of				Total Men	Proportion of				Total Men	Proportion of			
		A %	F %	U %	O %		A %	F %	U %	O %		A %	F %	U %	O &
Carpenters	164	54	35	4	7	181	48	42	4	6	210	42	53	1	5
Painters	44	34	52	-	14	73	22	67	3	8	94	27	63	3	7
Misc. Skilled (Metal) Tradesmen	19	89	5	-	5	26	92	4	-	4	40	100	-	-	-
Machine Men	19	74	26	-	-	36	64	25	6	6	45	62	33	2	2
Labourers	54	81	13	-	6	114	73	22	2	4	111	75	20	5	1
Total	300	59	31	2	7	430	54	37	3	5	500	53	41	2	4
Total Crew - Car Department	405					598					683				
Proportion included	74%					72%					73%				

A = Anglophones

F = Francophones

U = Uncertain

O = Others

organization of the Shops and the relative importance (as judged by the numbers of workers) of their various sectors. Thus, Table 2 is broken down into two sections, the Motive Power Department and the Car Department, with the former being shown first as it employed almost twice as many men as the latter. In each section, the sectors are generally listed in the order of size, the skilled trades appearing first, followed by any special operations such as the foundry and the rolling mill and finally by a short grouping of miscellaneous, mostly unrelated, job classifications. Table 2 is broken up by a number of vertical and horizontal lines to make it easier for the eye to scan and comprehend it. For this particular table, the lines also serve the purpose of separating the various sectors and periods.

It will be noticed that the bulk of the men in the Motive Power Department were metal workers, while those in the Car Department were mainly wood workers. This reflects the fact that locomotives (made and/or maintained in the Motive Power Department) were mainly constructed of metal, whereas the cars of the period (built and/or maintained in the Car Department) were largely made of wood.

With the tables organized as they are, they cannot be scanned quickly from top to bottom to obtain an impression of how ethnic distribution changed as one moves from highly-skilled to semi-skilled to unskilled classifications. This information can be picked out of the tables but it is

not quickly available at a glance.

Observations and comments on the data in Tables 2 and 3 will be found in the next section.

Observations and Comments on the Data

Motive Power Department

Machinists' Sector

As shown in Table 2, the fully-trained machinists were a group in which anglophones were greatly in the majority during the whole study period from 1902 to 1917, the make-up being over 85% anglophone in 1902 and 1910 but falling off somewhat to about 75% by the end of 1917. The balance of the crews was split fairly evenly between francophones and Others (if we ignore the Uncertain category) except at the end of 1917 when it was about 2:1 in favour of the francophones as the decrease in the anglophones had been balanced by an increase in the latter.

The machinist's assistants, who were essentially helpers and not machinists-in training, did not have such a large preponderance of anglophones as the trained machinists as, while their make-up was 79% anglophone in 1902, it fell off to just over 50% at the end of 1917. Even so, these crews were still predominantly anglophone. While francophones were the second largest group in 1902, by 1910 they had been supplanted by the Others category which, by the end of 1917, represented 25% of this trade due to the large number of

Central or eastern European immigrants that had been taken on.

The make-up of the machinists' apprentice and improver group more or less mirrored that of the fully-trained machinists except that it was less strongly anglophone. For the whole study period, the Others category was a small and unimportant component. The surge in the proportion of francophones to one third of the whole in 1917 should be noted. This might be an indicator pointing to a reduced anglophone dominance among the machinists in the years after the Great War.

In general, it appears that the machinists' sector was very strongly anglophone, this ethnic category making up 83% of the sector's employees in 1902 and still 63% at the end of 1917. The sharp fall-off represented by the latter figure can probably be attributed partly to the upset caused by the War and to the large number of men who had volunteered for service, and partly to the strong movement of the Others category into the assistants' ranks.

Boilermakers'Sector

As indicated by the table, the fully-trained boilermakers were another strongly anglophone group but the anglophone predominance decreased somewhat from 1902 to 1917 while the proportion of francophones, although never very high, increased steadily. These tendencies were different from

those of the machinists' group which lost anglophone strength only from 1910 to 1917 and not before. The Others category, while present throughout the period, was relatively unimportant.

The boilermaker's assistants group was somewhat less strongly anglophone than the machinist's assistants. By 1917, indeed, the anglophone preponderance of earlier years had given way to a definite overall minority position. However, unlike the situation with the machinist's assistants, the francophones strongly outnumbered the Others throughout the study period.

In general in the boilermakers' sector, while the probable effect of the War on the anglophone presence in 1917 may have confused the issue, there seems to have been an indication of falling anglophone majorities and of increasing francophone minorities.

Blacksmiths' Sector

The fully-trained blacksmiths contained a very strong predominance of anglophones which held consistently within the range of 81% to 92% throughout the 1902--1917 study period. The only other ethnic category represented was the francophone.

The group of forgemen and their assistants also contained a large and consistent majority of anglophones, the

francophones again being the only other category present and thus accounting for the balance.

Unlike the trained blacksmith and forgemen groups, the blacksmith's assistants, while having a steady or increasing majority of anglophones, also had a consistently stronger contingent of francophones. As with the boilermakers' assistants, the Others category remained relatively small and unimportant during the period.

Taken together, this sector was predominantly anglophone, lying between the machinists' and boilermakers' sectors in this regard. Like the latter, the blacksmiths' sector had a francophone component that was consistently higher than that of the machinists' sector. The Others component was unimportant.

Carpenters and Painters

As can be seen in Table 2, the make-up of these two trades in the Motive Power Department exhibited a consistent, relatively large, anglophone majority, a relatively low and stagnant or falling francophone minority and a smaller but stagnant or increasing Others component. As will be noticed later, these characteristics were the opposite of what was happening in these two trades in the Car Department.

Foundry

Throughout the study period from 1902 to the end of 1917,

the moulders' group displayed a steady preponderance of francophones. The anglophones were the other major category, the Others being relatively unimportant.

By comparison, the foundry fettlers' and labourers' group, while predominantly francophone in 1902, then experienced sharp decreases in the importance of both its anglophone and its francophone contingents. Thus, by the end of 1917, the Others category made up 73% of the group with the anglophones representing only 20% and the francophones an unimportant 7% of the total.

Unlike the rolling mill which, as will be seen below, became a work place dominated by the Others category by 1917, the foundry, in general, exhibited less extreme tendencies. During the 16 years from 1902 to the end of 1917, the overall make-up of its crew changed from an approximate 58%-37%-4% split between francophones-anglophones-Others, respectively, to a much more uniform 33%-29%-31% conformation or essentiallly an even split between the three ethnic groups.

Rolling Mill Sector

Concerning all rolling mill job classifications except the labourers, the striking thing throughout the study period was a sharply decreasing anglophone component, which was being replaced by steeply rising francophone and Others categories. By the end of 1917, the anglophone contingent

amounted to less than one third of the combined total of the other two categories, with the francophone group being only slightly larger than the Others group.

In a similar manner, the anglophone component of the rolling mill labourers decreased very sharply (from 63% to 8%) between 1902 and 1917. However, unlike the trends with the other mill classifications, the francophone group also decreased sharply in importance while the Others category rose to the predominant position of 75% of all these labourers by 1917.

Due to the above changes, the rolling mill crew as a whole underwent a dramatic realignment between 1902 and 1917, dropping from 72% to 15% anglophone with a compensating increase in the Others from nil to 59% and with the francophones making up the balance. While the effect of the War undoubtedly contributed to this realignment, other, more permanent changes and trends were obviously also involved.

Machine Men

This group was another anglophone preserve during the study period, the fall-off in anglophone numbers after 1910 probably being due mainly to the War. Of particular interest with this group is the steady decline in the francophone component throughout the period and its replacement by the Others category which, by the end of 1917, was furnishing about a quarter of the machine men.

Miscellaneous Skilled (Metal) Tradesmen

This heading includes the rivetters, tubers, tinsmiths, pipefitters and brass finishers, all of whom were present in numbers too small to justify separate consideration. While the anglophones were in the majority throughout the period, their numbers were decreasing steadily, being replaced by an increasing francophone minority. The Others category was present but was so small as to be of no significance.

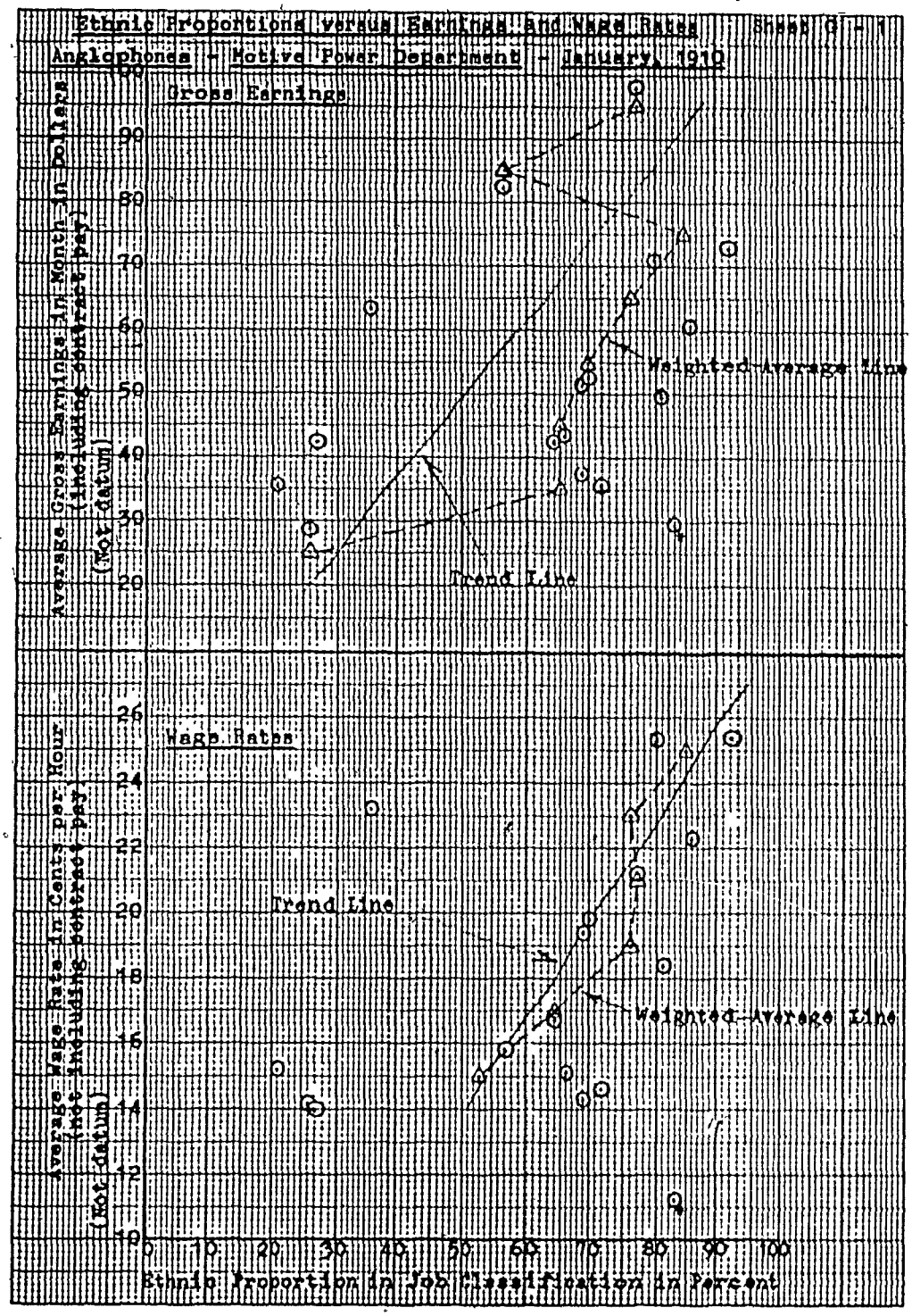
Labourers.

As indicated in the table, in 1902 anglophones were considerably in the majority at about 55% of the main labouring crew followed by francophones at about 32%. During the study period the magnitudes of both these components dropped precipitously and that of the Others category rose sharply so that, by the end of 1917, the latter represented about 84% of all labourers. (The balance of 16% was split between the anglophones and francophones in the ratio of almost 2:1, respectively).

This situation is of particular interest as it might be expected that this, the lowest-paid job classification (except for apprentices) in the department, would have been the preserve of the francophones in the same way as the anglophones dominated the bulk of the higher-paying, fully-trained tradesmen, jobs. However, during the study period at least, the anglophones always represented a larger proportion of the labourers than did the

francophones. When they fell into the minority, they were replaced not by the francophones but by the Others category, representing, mainly, the large-scale flow of Central and eastern European immigrants into unskilled jobs in the Shops.

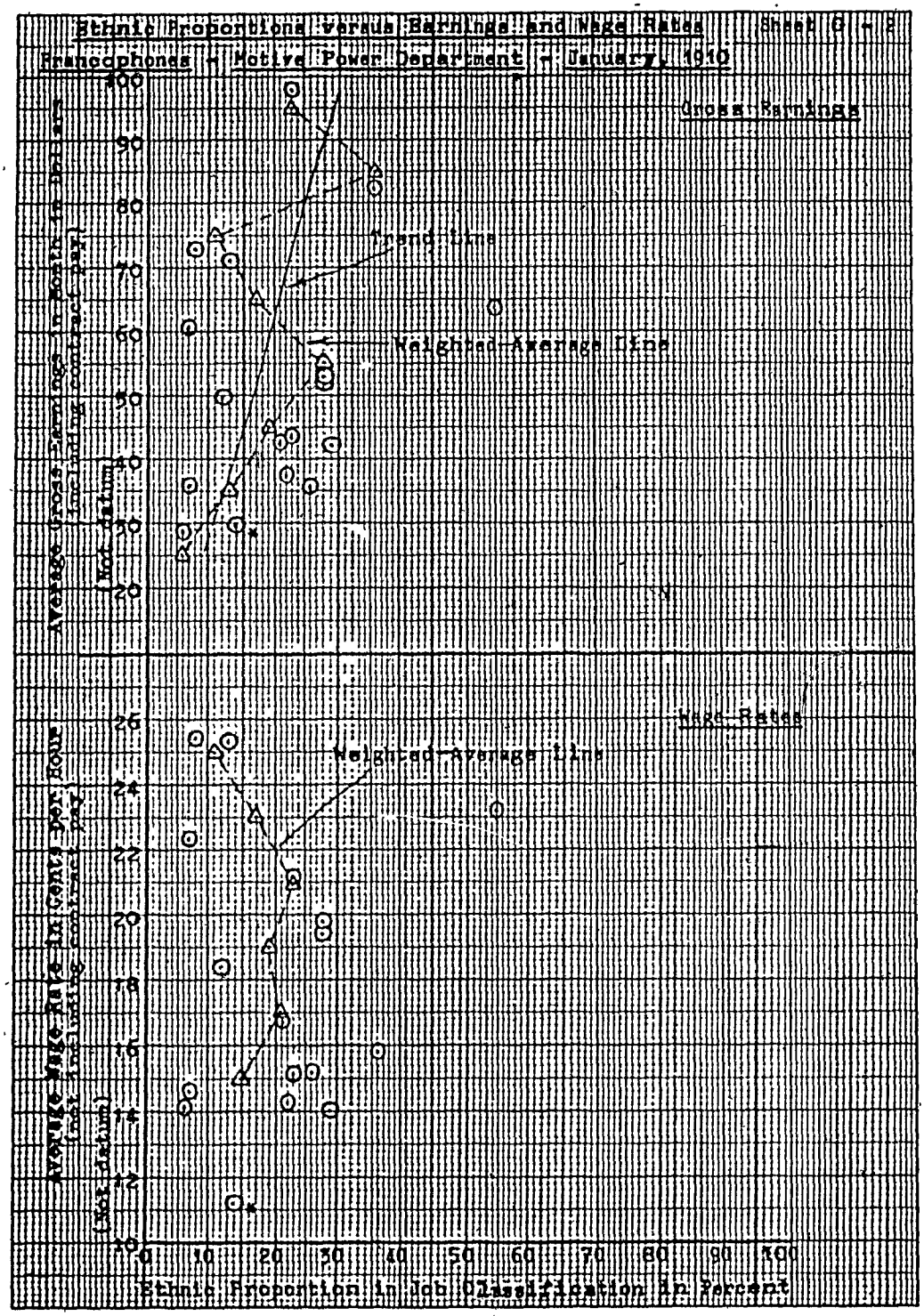
Despite this apparent anomaly, plots of ethnicity versus earnings for January, 1910 (see curves on Sheets G-1 and G-2 which are based on the data in Tables 2 and 7) do suggest a vague correlation between these variables, in the Motive Power Department, at least. These correlations are especially apparent for the anglophones (Sheet G-1) and, whether based on mean gross earnings in the month (upper curve) or on the average hourly rate (lower curve), surprisingly similar plots, yielding trend lines with much the same slope, are obtained. These seem to indicate a definite trend for a higher proportion of anglophones to have been present in the higher-paying, more highly-skilled jobs. As will be noticed, in each case the indicated slope of the trend line is confirmed by a second (dashed) line called the 'weighted-average line' which joins the points indicating the weighted averages of the individual points in each bracket of the wage rates and gross earnings. (The points indicated for the machinist apprentices and improvers are not included in the averages as the pay rates of these young workers were training rates, subject to constant change and having little relationship to the rates for the other men in the Shops.)



Notes: O - Individual classifications

Δ - Weighted averages of ethnic proportions in each wage rate and gross earnings bracket

* - Apprentices



Notes: O - Individual classifications

Δ - Weighted averages of ethnic proportions in each wage rate and gross earnings bracket

* - Apprentices

The indications are less definite for the francophones (Sheet G-2), no trend at all (and therefore no trend line) being apparent in the plot against average wage rate (lower curve), indicating an apparent lack of any significant relationship between ethnic proportion and average wage rates. This is surprising as it would be expected that it would be the reverse of the indications on Sheet G-1 and that, if anything, the plot would indicate that higher proportions of the francophones would be found in the lower-paying, and therefore less-skilled, job classifications.

It will be noted that there is an apparent weak trend in the plot against average gross earnings (upper curves on G-2) but that the slope of the line is the opposite of what would be expected. No reason is known for these anomalous results for the francophones, unless they are connected with the relatively small numbers of them involved in many of the job classifications. For both the anglophones and the francophones, the plots against average gross earnings (upper curves) are probably less meaningful than those against average wage rates as other factors (hours worked and contract pay received) enter into the former but not the latter. These other factors may result in considerable distortion of the upper curves.

In trying to read something into and to draw conclusions from these curves, it must be realized that earnings levels

or wage rates are only surrogates for the type of work represented by the various job classifications. Thus, it was not the wage rate or pay so much as the type of work that a person wanted or for which he was fitted and qualified that dictated where he would fit into the Shops' organization.

Motive Power Department in General

Overall in the 17 trades analyzed (which included 80% to 86% of all the hourly-paid workers in the Motive Power Department from 1902 to the end of 1917), there was a definite majority (69%) of anglophones at the start of the period which dwindled to a slight minority (49%) by the end of the period. The francophone component held more or less constant at 22% to 24% (with a dip to 16% in 1910) while the Others category increased very substantially from 5% to over 25%. This latter increase was well under way by 1910 and thus, while its magnitude by 1917 may have been partly the result of the upset due to the War, it cannot be wholly ascribed to the latter. If the two rather specialized operations, the foundry and the rolling mill, are excluded, the Motive Power Department, as represented by the remaining trades analyzed, will be found to have had a majority (53%) of anglophones, even in 1917. This exceeded the francophone component (21%) by 2.5 : 1 and thus it can be said that this department was definitely an anglophone preserve throughout the study period, at least.

The trades included in the Motive Power Department were

mainly metal-working trades, and the great majority of men in the department were primarily metal workers or involved with metal working. If the fully-trained, skilled tradesmen, only, are considered (i.e. the machinists, blacksmiths, boilermakers and miscellaneous skilled tradesmen), it is seen that they maintained a decided predominance of anglophones (73%, average, even in 1917) throughout the study period. This was watered down to the departmental levels quoted before by the greater proportions of francophones and Others in the remaining job classifications in the department, but this should not be allowed to obscure the fact that the skilled, fully-trained metal workers were primarily a strongly anglophone group.

Car Department

Unfortunately, payroll records are available for the Motive Power Department for the period from 1902 to the end of 1917, only. However, for the Car Department, scattered records of hours worked (but not of earnings) are available for about 18 years starting in 1880 and then complete records are available for the 1902 to 1917 period. Thus, for the Car Department, the study period extended from 1880 to the end of 1917.

Carpenters' Sector

As Tables 2 and 3 show, there was no differentiation of the carpenters according to function until after 1902. Prior to this, the composition of the crew had changed steadily from

a slight overall anglophone majority (54%) in 1880 to a minority position in 1902 when it was only 32% anglophone and 65% francophone. During this period, the Others category remained at a fairly constant but unimportant level, dropping slowly from 7% to 3%.

The carpenter crew was split into freight car carpenters and passenger car carpenters after 1902. The former contained approximately equal anglophone and francophone components in 1910 but then lost anglophone strength to both the francophones and Others so that, by 1917, the anglophone and Others components were about equal at close to 20% but both were well below the francophone level of about 55%.

The passenger car carpenter group displayed marked francophone dominance in both pay periods (1910 and 1917) in which it was recorded separately and its ethnic make-up was remarkably uniform with approximate 30%-55%-13% splits between anglophones-francophones-Others, respectively.

If the separate freight car carpenter and passenger car carpenter crews after 1902 are combined as shown by 'All Carpenters' on Table 2 to provide comparison with the years that went before, it is seen that there was a steady fall-off in the strength of the anglophone component of the Car Department carpenters from 1880 to the end of 1917 except for a jog upward in 1910. The size of the francophone component increased in a complementary manner, being in a

dominant position steadily after 1888 despite a temporary downward jog, also in 1910. The Others component was unimportant and decreasing until after 1902 when it started increasing to a significant size, its 1917 level possibly being due mainly to the War. Overall, it can be seen that, in the 38-year period, the carpenter crew changed from a group with a definite anglophone majority to one in which the importance of the anglophones had been greatly diminished and that of the francophones had been greatly enhanced.

Painters' Sector

As with the carpenters' group, the painters' group was not differentiated as to function prior to 1902, all painters in the department being simply 'painters'.

As Tables 2 and 3 show, the francophones dominated the painting sector throughout the 38-year study period, consistently making up 63% to 68% of the total crew for most of the period and outnumbering the anglophones by more than 2:1. The Others category, while of significant proportions initially (in 1880), fell off steadily and remained at unimportant levels for the remainder of the period.

The individual groups of passenger car painters, passenger car painter's assistants and freight car painters, into which the painting crew was divided for the last half of the study period (Table 2), exhibited much the same make-up as

the combined group, the francophone component being dominant in all cases.

Miscellaneous Skilled (Metal) Tradesmen

This group included brass finishers, pipefitters, tinsmiths, fitters and millwrights. As with the similar group in the Motive Power Department, it was a strongly anglophone group, ranging from 77% to 100% anglophone during the 38-year study period. As Tables 2 and 3 indicate, the francophone component never exceeded 15% except in 1917 when it rose to 18%, which was due to the War, as likely as not. The Others category was never of significance at any time during the period.

Machine Men

From about 1902 onwards, this sector was split between wood machine men and iron machine men, presumably according to the type of work or material that was being processed. It is not clear whether the machine men employed before 1902 were wood or iron machine men or whether the crews of that period included both types, as may be most probable. However, it is assumed, for present purposes, that the pre-1902 workers were essentially iron machine men.

With respect to the wood machine man group, as Table 2 shows, it was steadily dominated by francophones from 1902 to 1917, with the anglophone component generally falling and the francophone rising. This seems to be consistent with the

general dominance of wood-working operations by francophones, as already noted.

By contrast, the iron machine man group was strongly anglophone in 1880, although it became increasingly less so until 1902. However, the falling trend was then reversed so that, surprisingly, by the end of 1917 the anglophone component had regained its 1880 level. As the two tables show, the francophone component changed in a manner complementing the above changes, while the Others category was relatively small and unimportant throughout.

It is noticeable that neither of the Car Department's crews of machine men acquired an important component of the Others category as happened to the Motive Power Department's machine man crew by 1917.

Labourers' Sector

For the first half of the study period, from 1880 to 1896, the anglophones were strongly in the majority among the labourers as shown in Table 3. However, a decided drop in the anglophone component, offset by sharp increases in the francophone and Others categories, then occurred with the result that, by the end of 1917, the latter were both present in approximately equal numbers and both exceeded the anglophone component somewhat (Table 2). The 1917 situation may have been partly due to the War, but it appears to have been mainly due to a trend that started years before the

War. It is noteworthy that, with this labouring crew, the proportion of Others never approached the levels reached in the Motive Power Department, at least during the study period.

Car Department in General

From 1880 to 1896 as shown on Table 3, the overall Car Department, as represented by ~~the five trades~~ investigated, had decided anglophone majorities (ranging from 53% to 59%) although they were obviously decreasing as time passed. However, by 1902, the anglophones had dropped to the minority position of 37%. Despite a minor resurgence in 1910, by the end of 1917 they had dropped further to one third of the whole with the francophones close to half and exceeding the anglophone numbers by 1.5 : 1. The Others category was not an important factor in the Car Department as a whole until 1917 when it amounted to 17% or about one third of the size of the francophone group. In contrast, in the Motive Power Department by 1917, the Others category was the second largest ethnic group with an excess over the third place francophones of 1.2 : 1.

Unlike the Motive Power Department, the majority of the Car Department's men were not metal workers, but wood workers, painters and labourers. Thus a clear distinction seems to be apparent here between the Shops' metal workers and non-metal workers as far as their ethnic make-up is concerned, the former being predominantly anglophone and in

the Motive Power Department and the latter predominantly francophone and in the Car Department.

The Shops in General

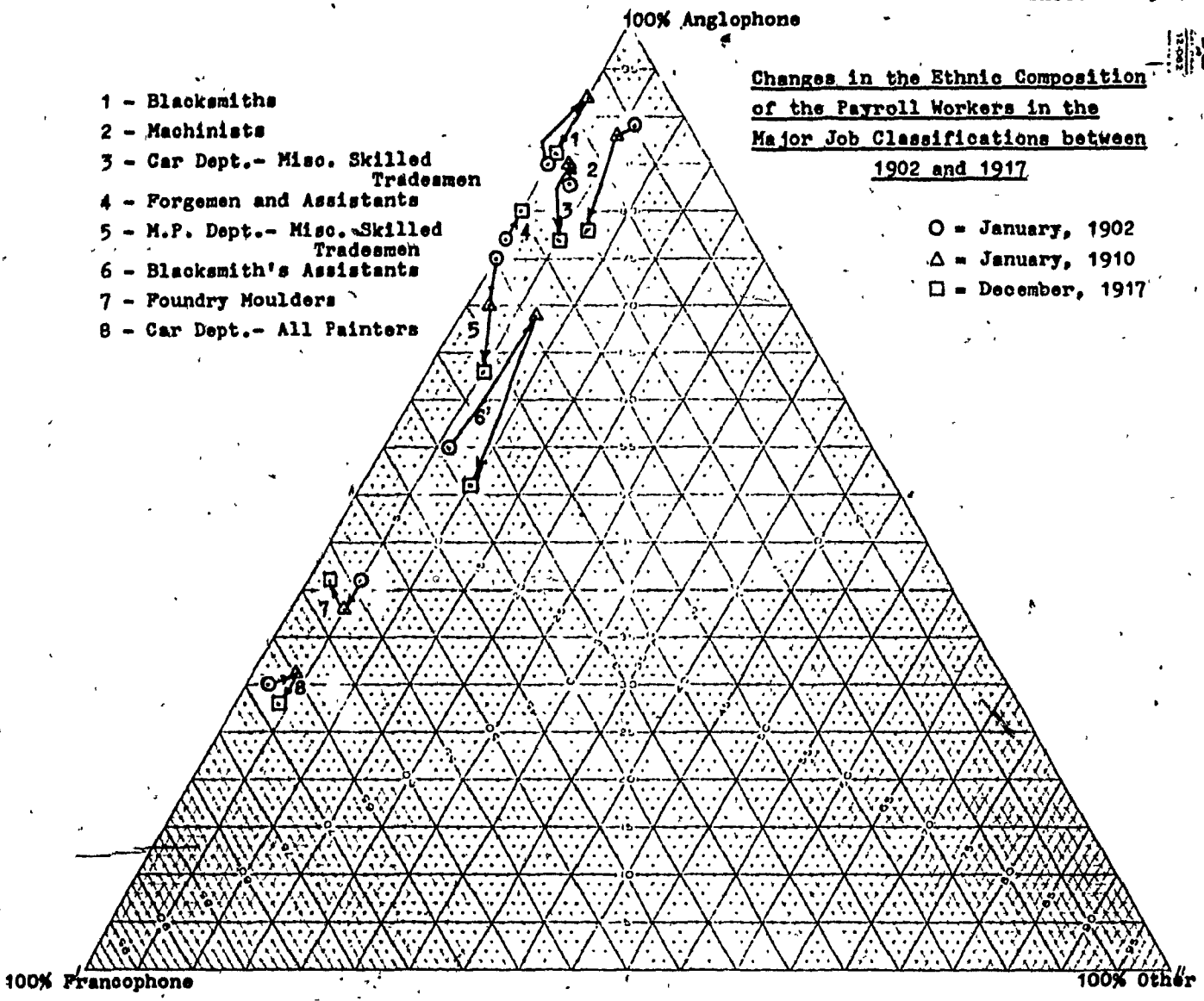
The data in Tables 2 and 3 reveal that, in many cases, on-going changes, sometimes slow and sometimes fast, were taking place in the ethnic make-up of the Shops' personnel over a period of years. This is shown graphically on Sheets G-3, G-4, and G-5 for the period 1902 to 1917. These three sheets all show the same thing -- the amount and direction of the changes in ethnic composition that were taking place in the various crews --, three sheets instead of one being required to separate clearly points that otherwise would be plotted on top of one another.

Sheet G-3 contains the plots for eight classifications in which the amount of change or movement was relatively small or, for practical purposes, often nil. It will be noticed that such movement that did take place was basically an interchange between francophones and anglophones (in one direction or the other), none of these classifications becoming more than 10% Other.

On Sheet G-4, the plots of six trades are shown in which the magnitudes of the changes are generally larger than on G-3. In four cases, the net movement was toward a greater francophone presence, while in two the trend toward a more pronounced participation by the Others category is quite

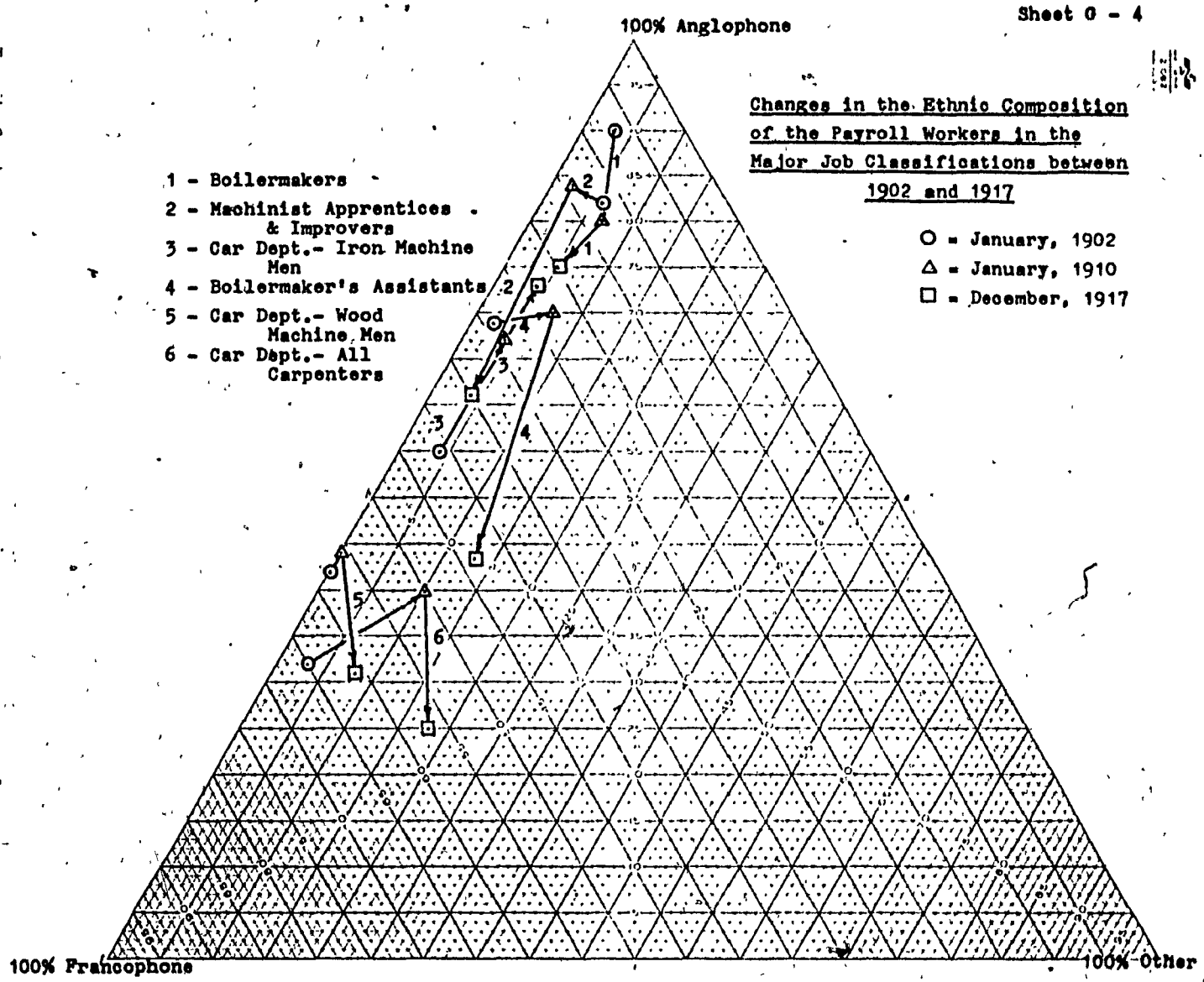
Sheet G - 3

Triangular Co-ordinate



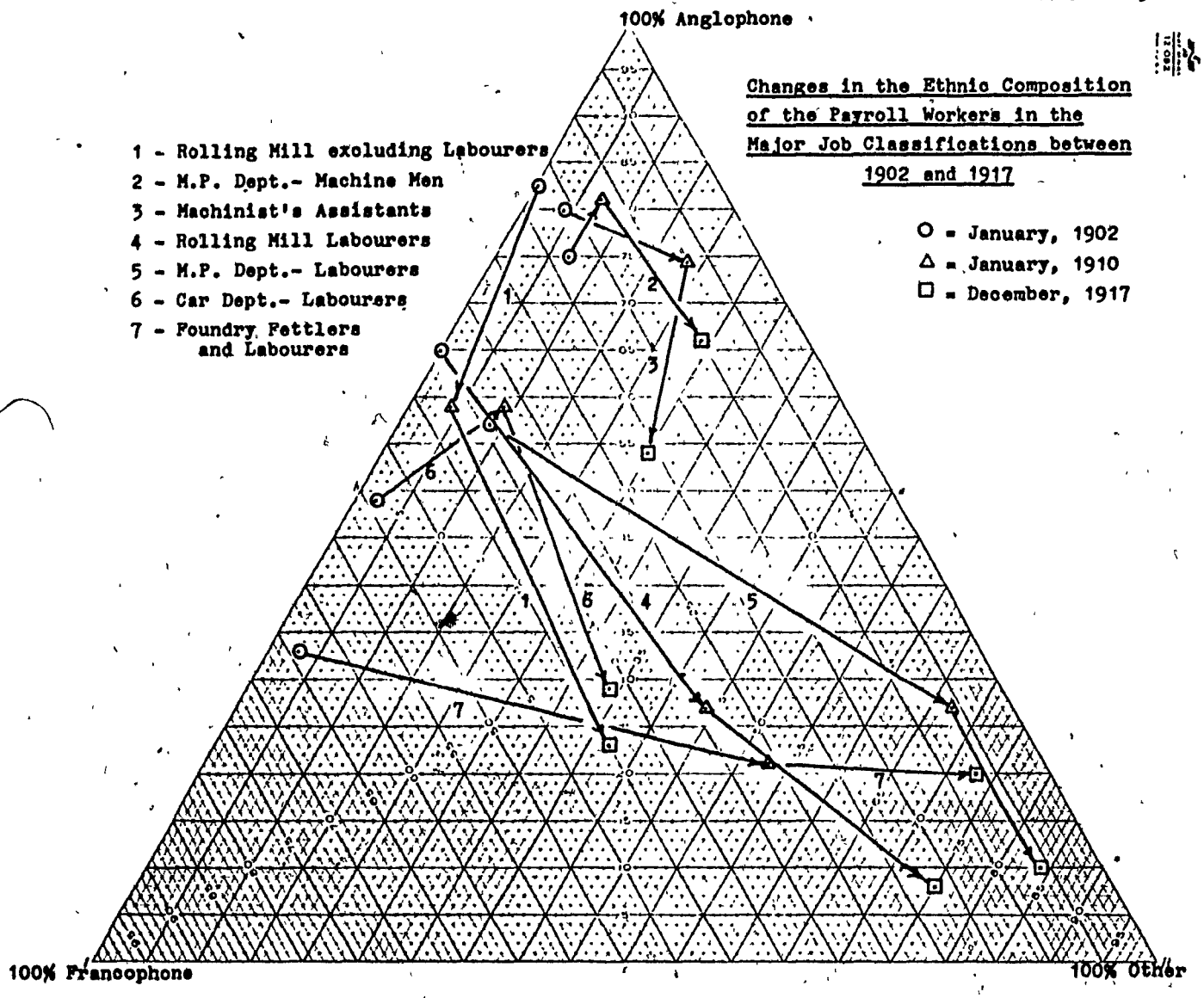
Sheet 0 - 4

Triangular Co ordinate



Sheet G - 5

Triangular Co-ordinate



Sheet G - 6

Triangular Co-ordinate

100% Anglophone

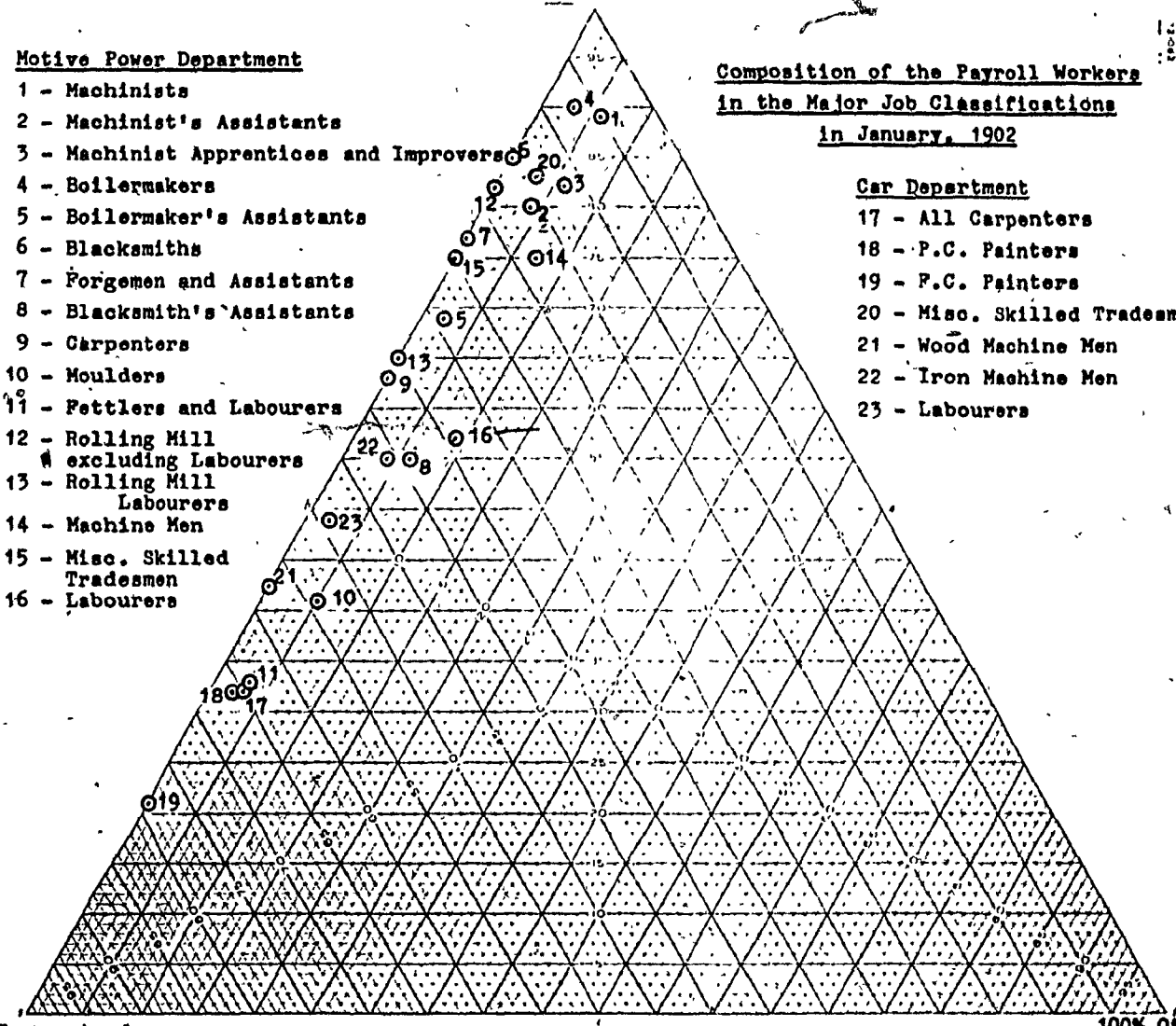
Composition of the Payroll Workers in the Major Job Classifications in January, 1902

Motive Power Department

1 - Machinists
2 - Machinist's Assistants
3 - Machinist Apprentices and Improvers
4 - Boilermakers
5 - Boilermaker's Assistants
6 - Blacksmiths
7 - Forgemen and Assistants
8 - Blacksmith's Assistants
9 - Carpenters
10 - Moulders
11 - Fettlers and Labourers
12 - Rolling Mill excluding Labourers
13 - Rolling Mill Labourers
14 - Machine Men
15 - Misc. Skilled Tradesmen
16 - Labourers

Car Department

17 - All Carpenters
18 - P.C. Painters
19 - F.C. Painters
20 - Misc. Skilled Tradesmen
21 - Wood Machine Men
22 - Iron Machine Men
23 - Labourers



100% Francophone

100% Other

Sheet G - 7

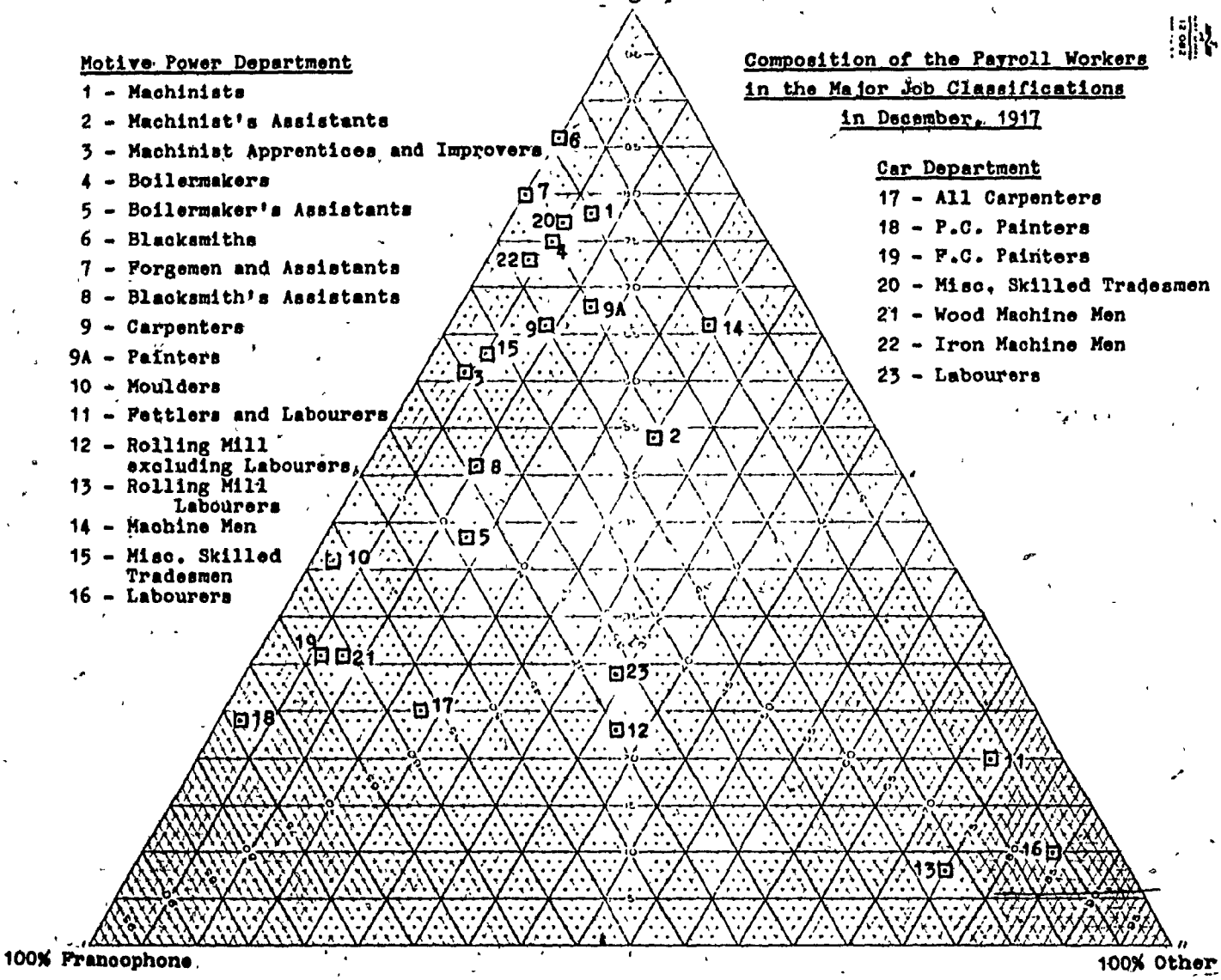
Triangular Co-ordinate

Composition of the Payroll Workers in the Major Job Classifications in December, 1917

100% Anglophone

100% Francophone

100% Other



Motive Power Department

1 - Machinists
2 - Machinist's Assistants
3 - Machinist Apprentices and Improvers
4 - Boilermakers
5 - Boilermaker's Assistants
6 - Blacksmiths
7 - Forgemen and Assistants
8 - Blacksmith's Assistants
9 - Carpenters
9A - Painters
10 - Moulders
11 - Fettlers and Labourers
12 - Rolling Mill excluding Labourers
13 - Rolling Mill Labourers
14 - Machine Men
15 - Misc. Skilled Tradesmen
16 - Labourers

Car Department

17 - All Carpenters
18 - P.C. Painters
19 - F.C. Painters
20 - Misc. Skilled Tradesmen
21 - Wood Machine Men
22 - Iron Machine Men
23 - Labourers

evident.

Sheet G-5 contains the plots of seven job classifications in which there was a very strong movement toward the replacement of anglophones and, often, of francophones, by the Others. As the sheet shows clearly, in three cases the proportion of the latter exceeded 70% by December, 1917.

The full extent of the changes in the ethnic compositions of the crews in the various job classifications listed in Table 2 is, perhaps, shown most vividly on Sheets G-6 and G-7. The points plotted on G-6 show the compositions in January, 1902. As is evident, they lay more or less along the anglophone/francophone axis, with the proportion of Others exceeding 5% in only 22% of the cases. Also, the crews were over 50% anglophone in 70% of the trades as compared to being over 50% francophone in only 26%.

Sheet G-7 shows the same information for December, 1917 and, as is evident, the situation had changed radically. 29% of the classifications now had Others components exceeding 20% (with 42% exceeding 10%). The proportion of the trades having over 50% anglophones in their crews had dropped to 54%, while only 21% now had over 50% francophones. Thus, by 1917, both anglophones and francophones had lost ground and had been replaced by Others.

Conclusions

The following conclusions can be drawn from the foregoing analysis of the ethnic composition of the Shops' workers.

The major trades in the Motive Power Department were the metal-working trades. During the period from 1902 to 1917, anglophones were in the majority, being especially dominant among the skilled metal-working tradesmen such as the blacksmiths, boilermakers, machinists, and miscellaneous skilled tradesmen, and the machine men.

The major trades in the Car Department were the wood-working and painting trades. Anglophones were in the majority in this department from 1880 to 1896 but, from 1902 to 1917, the francophones moved into a strong majority position, becoming especially numerous among the carpenters and painters.

The Others category, chiefly Central and eastern European immigrants, rose to considerable prominence in the Motive Power Department after 1902, especially in the unskilled tradesman's assistant and labouring-type classifications. By 1917, they outnumbered the francophones in the department.

In the Car Department, the Others category, while somewhat more important by the end of the period than it had been earlier, was still not the dominant ethnic group in any single job classification.

In general, the francophones were not strongly present in unskilled labouring-type occupations, usually being outnumbered by the anglophones in the earlier years and/or by the Others in the later years of the study period.

There was a general tendency for the anglophone majorities to become smaller or to turn into minorities during the course of the study period, this being illustrated graphically by the movements shown on curve Sheets G-3 to G-7.

In general, the study confirmed that the actual ethnic distribution of workmen in the various job classifications in the Shops agreed with the distribution that was expected based on the literature review, -- i.e. that the workers in most of the more highly-skilled jobs would be predominantly anglophone with the exception of the carpentry and painting trades in which the francophones would be found to be in the majority.

Chapter Four

Hours of Work, Rates of Pay and Earnings

In this chapter, the hours of work, the rates of pay and the earnings received by the hourly-paid workers at the Point St. Charles Shops during the period from 1880 to 1917 will be reviewed and discussed. As the greatest amount of detailed data is available for the period from January, 1902 to December, 1917, this period will receive the most attention. However the period from February, 1880 to January, 1898 will also be reviewed to the extent that the data available permit.

Review of the Literature

Unfortunately, the literature does not contain much detail about hours of work and rates of pay for industrial work in Canada for the late 19th and early 20th centuries. In the main, only one reference work, the Report of the Royal Commission on the Relations of Labor and Capital in Canada, published in 1889, is available, and it contains only sketchy and incomplete data, as shown in Table 4. However, from this and any other data that are available, it may be possible to derive some facts that will be a useful background for the present study.

The first observation that can be made regarding Table 4 is

HOURS OF WORK AND RATES OF PAY FOR SKILLED TRADESMEN AND ANCILLARY WORKERS IN EASTERN CANADA IN 1887-1888

TABLE 4

Trade	Toronto-General				Hamilton-General			Kingston Locomotive Works			Montreal-General			St. John, N.B. Car Building		Moncton, N.B. Car Shops	
	Hrs. per Day	Hrs. per Week	Wage Rate per Hour in cents	Pay per Week in $	Hrs. per Day	Hrs. per Week	Wage Rate per hour in cents	Hrs. per Day	Hrs. per Week	Wage Rate per Hour in cents	Hrs. per day	Wage Rate per Hour in cents	Pay per Week in $	Hrs. per day	Pay per Week in $	Hrs. per Day	Wage Rate per Hour in cents
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Blacksmiths	10		12-1/2 to 22-1/2					10		12 to 25				10	7 to 10	10	16 to 27
Blacksmith's Helpers														10[1]	6	10	11-1/2 to 13-1/2
Boilermakers								10		15 to 20						10	17 to 22
Boilermaker's Helpers																10	12-1/2 to 15
Brass Finishers			$2 - $2.50 per day								10	15 to 30					
Carpenters	9	45	23-1/2 to 27-1/2		10		22-1/2 to 27-1/2	10		13-1/2	10	15 to 21		10	7 to 10	10	12.8 to 18-1/2
Machinists	10		15 to 22-1/2		10	59	17-1/2 to 25						10	10	7 to 12	10	14 to 26.4
Moulders-General	10		22-1/2		10		22-1/2 to 25	10		14 to 20		$1.40 to $2.50 per day		10	7 to 12		
Painters	10		20		10		15 to 22-1/2							10	7.50 to 9	10	13.5 to 23
Steamfitters	9		20 to 33														
Stationary Engineers				12 to 20													
Cabinet-makers	10			10 to 12													

(continued)

TABLE 4 (continued)

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Patternmakers					10	59	17-1/2 to 25	10		20							
Fitters								10	59	15 to 22-1/2							
Fitter's Assistants								10		11 to 12-1/2							
Turners								10		15 to 25							
Labourers					10		11-1/2 to 15	10		10		$0.80 to $1.30 per day				10	11 to 13-1/2
Joiners											10	13 to 20					
Pipefitters																10	15 to 18
Tinsmiths																10	15 to 17
Tinsmith's Helpers																10	12-1/2 to 14
Apprentices																10	5 to 10

Trade	Hamilton Rolling Mill	St. John, N.B. Rolling Mill	
	Pay per Day in $	Hours per Day	Wage Rate per Hour in Cents
Roller	7	8 to 10	20*
Heater	6	8 to 10	25*
Rougher	3 to 3.50		
Helper	2.50	8 to 10	14 to 15*
Unskilled Men	1.25 to 1.50	8 to 10	11 to 12*

* - Based on 10 hours per day.

Source: Report of the Royal Commission on the Relations of Labour and Capital in Canada. Ottawa: Queen's Printer and Controller of Statioery, 1889, pp. 134-174.

Note: Where no data are given, they were not available in the Report; where single figures are shown instead of a range, only single figures were shown in the Report.

that, in 1887-1888, the working day in Eastern Canadian cities was apparently pretty generally a 10-hour day. There is some suggestion of a 9-hour day for some trades in Toronto but they were definitely in the minority (aside from, possibly, the trades involved at the St. John rolling mill). The question of the length of the working week is, however, uncertain. The clearly-shown 45-hour week for the Toronto carpenters (that must have consisted of five 9-hour days) might suggest that there was no Saturday work for any trade in that city. However, in Hamilton and Kingston, the 59-hour weeks shown (five 10-hour days plus nine hours on Saturdays) might imply 6-day weeks for everyone.

In Montreal, the stated weekly earnings of $10 for machinists suggest a 6-day week at about 16.7 cents per hour for 10 hours per day, which would be realistic. Thus, the best suggestion that can be made regarding hours of work is to assume 6-day, 59-hour weeks in Hamilton and Kingston, possible 5-day, 45 or 50-hour weeks in Toronto and probable 6-day, 60-hour weeks in Montreal.

There are no, really clear, patterns regarding rates of pay. Some trade or trades that seem to have had the highest rates can be found for each location except Kingston. In general, the Toronto and Hamilton rates were probably higher than Montreal's and, in these two Ontario centres, the carpenters appear to have had higher rates than most other trades. However, data from another source (Urquhart, 1965, p. 96)

might tend to dispute this, as they indicate that wage rates averaged $1.65 and $1.66 per day for carpenters and machinists, respectively, in Ontario from 1884 to 1889. For 10-hour days, these would be equivalent, of course, to 16.5 and 16.6 cents per hour, or essentially the same thing. However, if 9-hour days are assumed for the carpenters and 10-hour days for the machinists, the rates for the former would work out as being higher than those for the latter, even if not as high as indicated by the Royal Commission's data for Toronto.

Urquhart (pp. 94-95) also shows that, for a 19-year period in Montreal starting in 1882, there was very little change or movement in wages, carpenters lying in a range averaging $1.60 - $2.15 and general labourers in one averaging $1.05 - $1.40 per day. These ranges agree fairly closely with the ranges shown for Montreal for these two classifications in Table 4 (assuming 10-hour days). Thus, while none of the figures and data quoted by either the Royal Commission or Urquhart is very satisfactory, it would seem that, in Montreal in the 1880s, the evidence points to the going rates in the city for the trades employed at the Point St. Charles Shops being around 15-19 cents per hour for the skilled trades such as forgemen, blacksmiths, boilermakers, machinists, miscellaneous skilled tradesmen and carpenters; around 12-13 cents per hour for semi-skilled men and 10-12 cents per hour for labourers and unskilled workers. The exact level and relationship of the city rates for the

various skilled trades of the Shops probably depended on the local conditions of supply, demand and custom and cannot be more accurately set here due to the paucity of data in the literature.

Point St. Charles Shops

The data showing the actual hours of work, rates of pay and earnings at Point St. Charles during the study period will be found in a number of appended tables. These data are discussed below.

Hours of Work

The data available for the years prior to 1900 refer to the Shops' Car Department only. Typical hours worked in the most important job classifications (which included the great majority of hourly-paid workers in the department) are shown in Table 5 for particular months of four representative years from 1880 to 1898, all being at the same time of year to avoid seasonal fluctuations to the greatest extent possible. As can be seen, the scheduled or 'standard' number of hours per week were 52-1/2 to 54 in February, 1880, and 45 in the other three study years. It is evident that there were different schemes used for building up 45 hours per week, varying from five 8-hour days plus five hours on Saturdays (January, 1888), to six 7-1/2-hour days (half of February, 1896 and the entire month of January, 1898), to five 9-hour days with no Saturday work (the second half of February, 1896). Generally, there was some work on

ACTUAL HOURS OF WORK PER MAN - CAR DEPARTMENT - 1880-1898 TABLE 5

Job Classification	February, 1880							January, 1888						
	Portion of Month	'Standard' Hours: Per Week-day	on Saturdays	on Sundays	Total for Week	Total for Month	Average Hours Actually Worked in Month	Portion of Month	'Standard' Hours: Per Week-day	on Saturdays	on Sundays	Total for Week	Total for Month	Average Hours Actually Worked in Month
Carpenters	3 wks.	9-1/2	5	-	52-1/2)	212	199	Whole	8	5	-	45	188	179
	1 wk.	10	4	-	54)									
Machine Men	Same as above				52-1/2 & 54)	212	238	Whole	8	5	-	45	188	184
Misc. Skilled Tradesmen								Whole	8	5	-	45	188	188
Painters	Same as above				52-1/2 & 54)	212	205	Whole	8	5	-	45	188	165
Labourers	)							Whole	8	5	-	45	188	187
L. Labourers	) Same as above				52-1/2 & 54)	212	220	Whole	9	5	-	50	209	160
	February, 1896							January, 1898						
Carpenters	2 wks.	7-1/2	7-1/2	-	45)	188	182	Whole	7-1/2	7-1/2	-	45	188	180
	2 wks.	9	-	-	45)									
Misc. Skilled Tradesmen	Same as above				45	188	178	Whole	7-1/2	7-1/2	-	45	188	195
All Painters	Same as above				45	188	177	Whole	7-1/2	7-1/2	-	45	188	180
Machine Men	Same as above				45	188	183	Whole	9-1/2	7-1/2	-	55	232	232
Labourers	Same as above				45	188	192	Whole	9-1/2	7-1/2	-	55	232	207
L. Labourers	Whole	9	9	-	54	221	217							

Sources: Workmen's Time Books for the appropriate periods

Saturdays, but there was seldom, if ever, any scheduled work on Sundays.

As Table 5 shows, the average monthly hours actually worked conformed fairly closely to the 'standard' hours. Occasionally they exceeded 'standard' substantially, as the Machine Men did in February, 1880, but at other times they fell below, sometimes by a wide margin, as the L. Labourers did in January, 1888.

From the above, it would appear that, at 45 hours per week, the majority of the workers in the Car Department prior to 1900 often had nominal or 'standard' work weeks that bore surprisingly good comparison with the 37-1/2 to 40-hour week that is now common in Canadian industry (The Globe and Mail, Toronto, February, 8, 1985 p. B12). In saying this it is realized that the four study months were all at the same season of the year. It is possible that, if the work load changed at other seasons, the length of the 'standard' working week might also have changed. This should be investigated in any future work in order to obtain a complete picture of the Shops' scheduling practices.

In contrast to the above, however, there were usually a few job classifications involving relatively small numbers of men in which the regular working hours were excessively long. For example, in February, 1880, eight out of nine watchmen worked 29 days without a break, and the ninth man

worked 28 days; two steam men each worked as much as 12 hours per day, seven days a week, all month, resulting in one of them accumulating 348 hours in the 29 days; cleaners worked every day, including one and three quarters days on Saturdays, resulting in some of them being paid for 32 days of work in the 29-day month.

That the cases quoted were not isolated, freak happenings is shown by the fact that, in January, 1888 and February, 1896, the same situation is found. The watchmen in the latter month all worked 13 hours a day for 29 days resulting in each being paid for a total of 377 hours in that month. The longest working times recorded were in January, 1898 when 403 and 409 hours are to be found among the watchmen and steam men, respectively. Twenty years later, in December, 1917, the watchmen in the Car Department were still working inordinately long hours, three out of four again each accumulating 403 hours. In the same month, 16 boiler operators in the Motive Power Department each worked an average of 313 hours, with the highest figure for one individual being 426 hours or an average of almost 14 hours per day throughout the month.

Data showing monthly hours of work for the main job classifications of both the Motive Power and Car Department after 1900 are contained in the right-hand half of Table 6. The pre-1900 data in the left-hand half are provided for comparison, being the monthly figures taken from Table 5.

MONTHLY HOURS OF WORK (AVERAGE PER MAN IN THE STATED MONTH) TABLE 6

Job Classification	Actual (As Recorded)								Actual (Calculated)*								
	Feb., 1880		Jan., 1888		Feb., 1896		Jan., 1898		January, 1902			January, 1910			December, 1917		
	Standard	Actual	Standard	Actual	Standard	Actual	Standard	Actual	No Contract Pay	With Contract Pay	Overall	No Contract Pay	With Contract Pay	Overall	No Contract Pay	With Contract Pay	Overall
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Motive Power Department																	
Forgemen and Assistants									None	255	255	None	292	292	None	217	217
Roll. Mill excl. Lab.									219	174	183	257	193	205	206	165	172
Blacksmiths									260	260	260	None	191	191	None	217	217
Boilermakers									203	222	215	None	206	206	205	177	190
Foundry Moulders									226	259	244	198	203	202	194	184	187
Machinists									229	223	227	251	198	204	216	223	220
Misc. Skilled Tradesmen									235	221	228	161	201	198	265	215	222
Machine Men									250	229	233	189	196	196	183	197	193
Carpenters									282	None	282	232	210	219	256	206	235
Blacksmith's Assistants									260	256	258	227	203	207	281	200	205
Rolling Mill Labourers									218	222	219	237	205	220	151	159	155
Painters									-	-	-	181	201	197	201	197	198
Boilermaker's Assts.									180	205	195	190	193	193	179	181	181
Machinist s Assistants									262	226	260	223	194	208	209	220	217
Foundry Fettlers & Lab.									230	260	235	220	207	219	225	200	223
Labourers									212	214	212	199	185	198	203	208	204
Machinist Apprentices and Improvers									222	231	227	165	199	196	164	192	178
Motive Power Department Average **									233	230	233	209	205	209	209	198	201

(continued)

TABLE 6 (continued)

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Car Department																	
Misc. Skilled Tradesmen	–	–	188	188	188	178	188	195	216	206	216	271	294	276	223	178	184
P.C. Painters	–	–	–	–	–	–	–	–	183	213	183	225	186	188	183	175	176
Iron Machine Men	212	238	188	184	188	183	232	232	218	199	212	270	230	241	146	191	189
F. C. Carpenters	212	199	188	179	188	182	188	180	198	193	196	201	199	199	159	171	166
P. C. Carpenters												187	196	190	168	176	175
Wood Machine Men	–	–	–	–	–	–	–	–	207	136	204	182	221	198	188	174	177
F. C. Painters	212	205	188	165	188	177	188	180	189	170	181	157	211	202	169	167	167
P. C. Painter's Assts.												176	188	186	165	155	156
Labourers	212	220	188	187	188	192	232	207	193	206	195	195	216	198	159	157	158
Car Department Average **	212	216	188	181	188	182	206	199	201	189	198	207	216	209	173	172	172
Whole Shops Average **									222	217	223	208	208	209	196	189	191

Notes: * Calculated from the corresponding wage rate and earnings data. (A number of checks showed that the calculated values agreed very closely with the values obtainable by averaging the hours of work performed by individual workers as recorded in the Accounts Payable ledgers.)

** The averages shown at the bottoms of the columns are not weighted for the numbers of men in the various classifications as several checks showed that the simple and weighted averages were within a few percent of each other and thus that the simple averages were adequate for the purposes intended here.

Comparisons of the total monthly hours worked before and after 1900 show that, for many of the job classifications, work weeks were somewhat longer in January, 1902 than they had been, in the Car Department at any rate, for some years before 1900. With the data in Table 6 arranged in two groups, Motive Power Department classifications and Car Department classifications as shown, it is seen that, for 16 Motive Power classifications (in January, 1902), the overall average hours worked by each man were 233 while, for seven Car Department classifications, they were 198 (neither weighted). Considering that the month was a 31-day month, these averages suggest that the Motive Power Department was working a somewhat longer 'standard' week than the Car Department, and that the latter's standard was probably close to what it had been before 1900, or around 48 hours per week. The Motive Power Department's standard for this month of January, 1902 was probably around 55 hours per week.

Comparing the three study months shown on the right-hand half of Table 6, it is seen that, as the 20th century progressed, the number of hours per man decreased for both the Motive Power Department and the Car Department. By December, 1917, 17 job classifications of the former averaged only about 201 hours per man while nine classifications of the latter had decreased to an average of 172 hours per man. Thus, it is clear that, by December, 1917, while some job classifications, such as the Motive Power carpenters, for example, still had an unusually high

number of hours per man, many of the hourly-paid men in the Point St. Charles Shops, as represented by the job classifications in Table 6, were again experiencing work schedules that compared very favourably with modern Canadian industrial work schedules.

The month of December, 1917 occurred, of course, during the Great War and it might be argued that war-time exigencies and instabilities may have been the basic cause of the shorter work months that the Shops then experienced. This seems unlikely, however, for two reasons. First, if anything, the manpower shortages that normally prevail during a major war would have resulted in lengthening work weeks and months rather than in shortening them. Second, the shortening of the work months that was very apparent by December, 1917 seems to have been part of a trend that was quite evident by January, 1910 (see Table 6), well before the war started.

A pertinent question connected with hours of work is whether men who were working on a work contract might have been required to work either a longer or shorter work week than men who were on a straight wage rate basis. No information regarding contract workers is available for the pre-1900 years (assuming that they existed then) so only the post-1900 data in the right-hand half of Table 6 are of use in attempting to answer this question.

A study of the values in the table indicates a considerable variation from one job classification to another, with the 'No contract pay' hours of work values sometimes exceeding and sometimes falling short of the 'With contract pay' values. If all the values in each column are averaged, as shown for the whole shops at the bottom of the table, it appears that the 'No contract pay' men worked slightly longer hours than the 'With contract pay' men in January, 1902. In January, 1910 there was no difference between the two groups but, by December, 1917, a small difference in the same direction as in 1902 and amounting to about 3.7% had again appeared. However, as the differences, where they existed, were minor, it is concluded that there was no important difference between the monthly hours of work for workers who worked on a work contract and the hours for those who worked on a simple wage rate.

Rates of Pay and Earnings versus Levels and Types of Skills

The Workmen's Time Books, to which reference has already been made, contain detailed information regarding hours of work (in the Car Department) in the period before 1900 but only a minimum of information regarding rates of pay and earnings and that for only near the end of the period -- i.e. January, 1898. Thus, in the present discussion, attention will be directed mainly to the post-1900 period with the data being drawn from the Accounts Payable ledgers which give detailed monetary information but only summary data regarding hours of work. In Table 7, complete listings

AVERAGE HOURLY WAGE RATES AND AVERAGE MONTHLY GROSS EARNINGS
AT THE POINT ST CHARLES SHOPS - 1898 TO 1917

TABLE 7

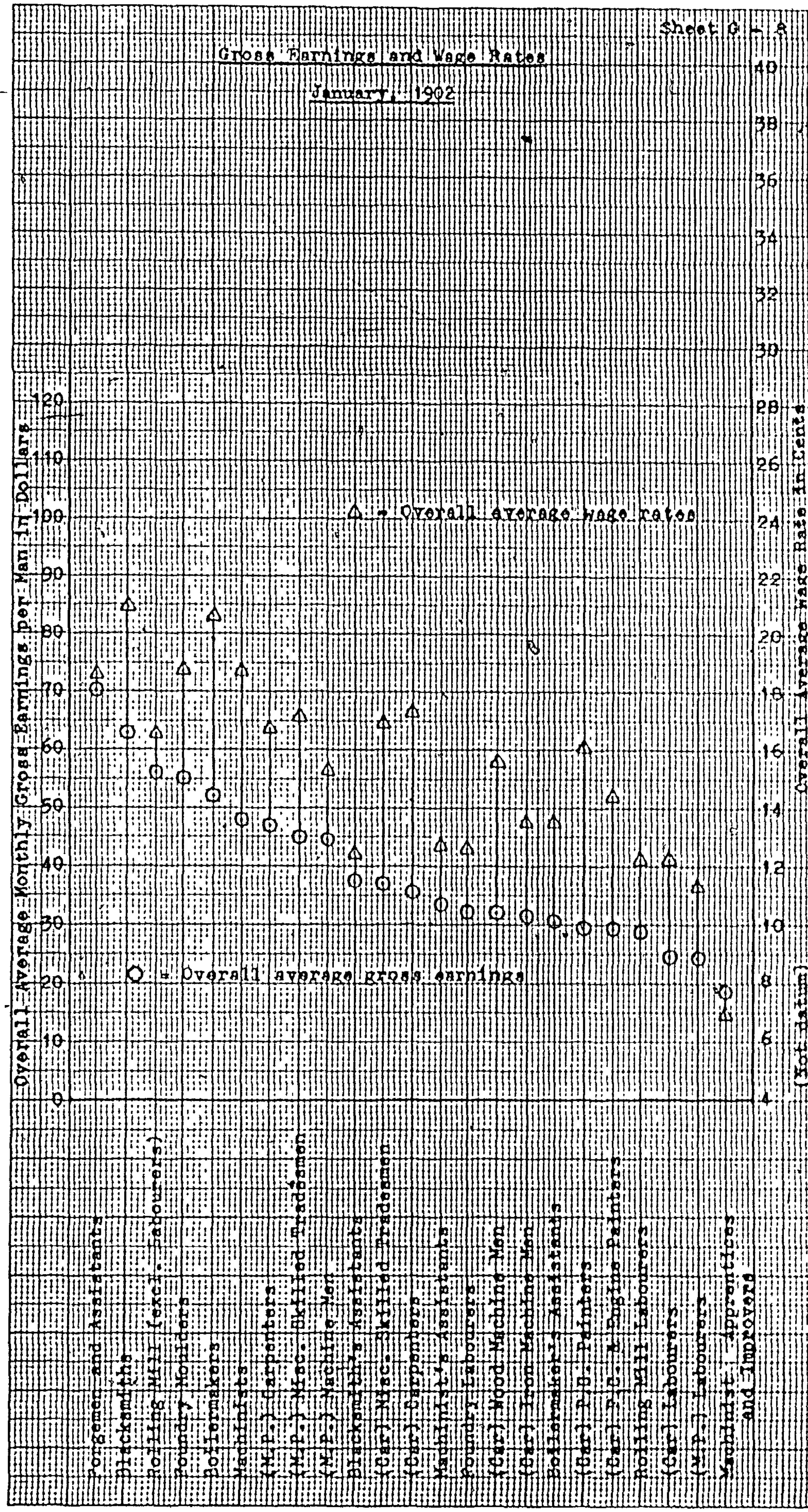
Dept.	Job Classification	January, 1898	January, 1902			January, 1910				* December, 1917			
		Average Wage Rate in ¢	No of Men	Average Wage Rate in ¢	Average Gross Earnings in $	No. of Men	Average Wage Rate in ¢	Actual Average Gross Earnings in $	Predicted * Average Gross Earnings in $	No of Men	Average Wage Rate in ¢	Actual Average Gross Earnings in $	Predicted * Average Gross Earnings in $
1	2	3	4	5	6	7	8	9	10	11	12	13	14
M.P.	Forgemen and Assistants		13	18 6	70 22	13	21 2	97 82	80 50	10	27 9	102 08	133 00
M.P	Rolling Mill excluding Labourers		35	16.5	56 23	28	15 8	82 11	64 50	35	26 2	67 62	106.50
M.P.	Blacksmiths		29	20 9	62 72	25	25 4	72 83	71 00	16	31 6	114 94	119.00
M.P	Boilermakers		29	20 6	52 11	30	25 3	71 00	59 50	20	38 5	88 24	99.00
M P.	Foundry Moulders		60	18 7	55 01	66	23 2	63 61	63 50	45	39 7	96 04	104.00
Car	Misc Skilled Tradesmen	18 1	29	16 9	36 97	48	20 6	60 66	42 50	61	28 4	72 42	70.00
M P	Machinists		150	18 7	47 80	260	22 3	60 58	54 50	197	33 0	91 08	91 00
M P	Misc Skilled Tradesmen		43	17 1	45 06	50	19 8	52 69	51 50	61	30 1	91 78	85 50
Car	P C Painters	16 0	94	16 1	29 49	67	20 8	50 35	33 50	43	28 4	67 20	56 00
M P	Machine Men		83	15 3	44 47	100	18 4	49 62	51 00	87	24 5	64 12	84 00
Car	Iron Machine Men		24	13 5	31 39	26	15 6	48 26	36 00	26	24 1	72.13	59 00
M.P	Carpenters		16	16 7	46 95	32	19 4	51 75	53 50	34	31 5	89 24	89 00
Car	F. C Carpenters	)				227	20 0	45 14	40 50	177	28 9	54 86	67 50
Car	P C Carpenters	)	263	17 3	35 54	153	21 4	44 20		96	29 5	68 05	73 00
M P	Blacksmith's Assistants		79	12 4	37 36	73	15 1	43 47	42 50	61	21 0	68 85	70.50
M P	Rolling Mill Labourers		32	12 7	28 65	41	14 0	42 14	32 50	48	24 9	42 53	54 50

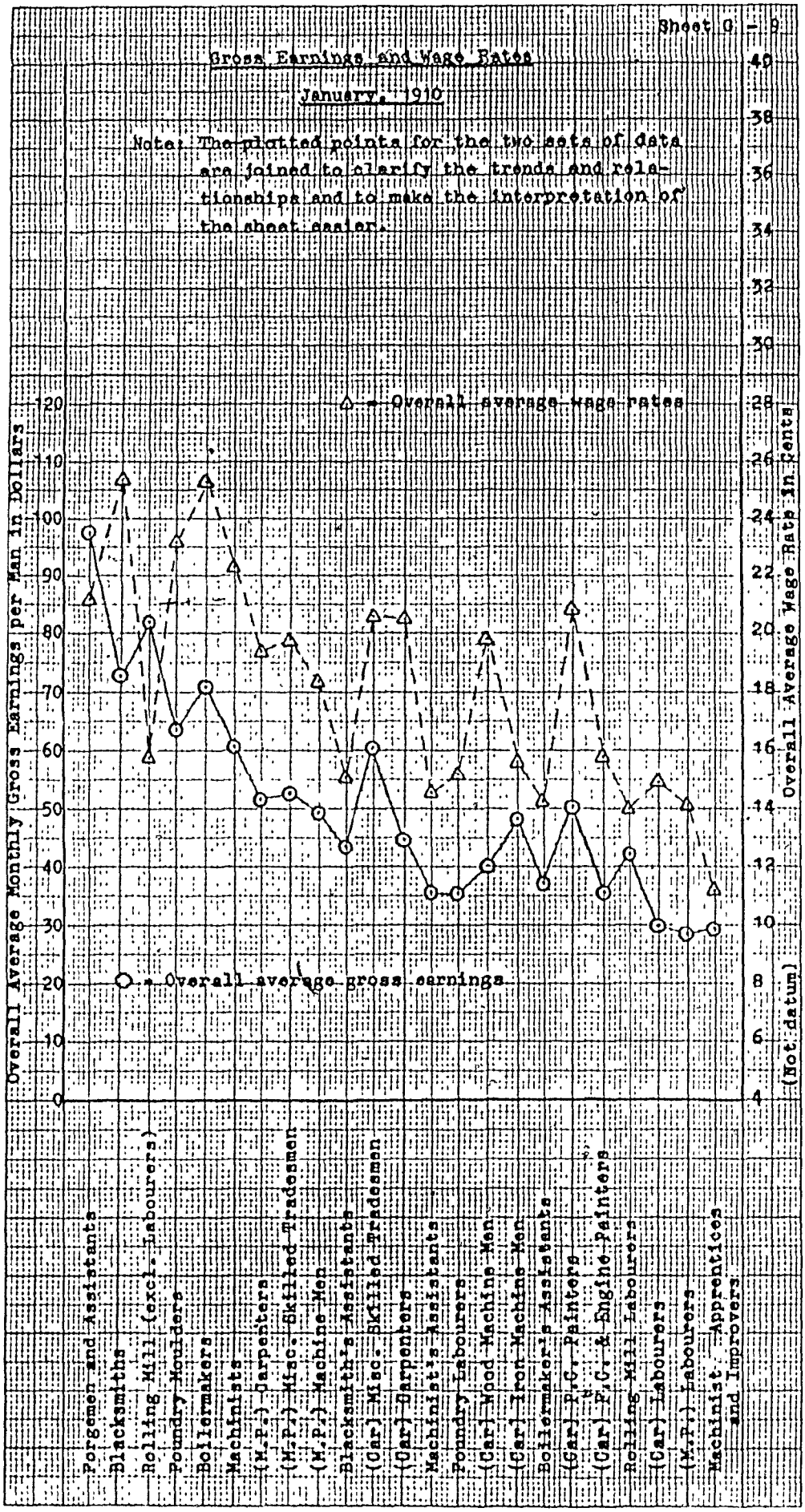
(continued)

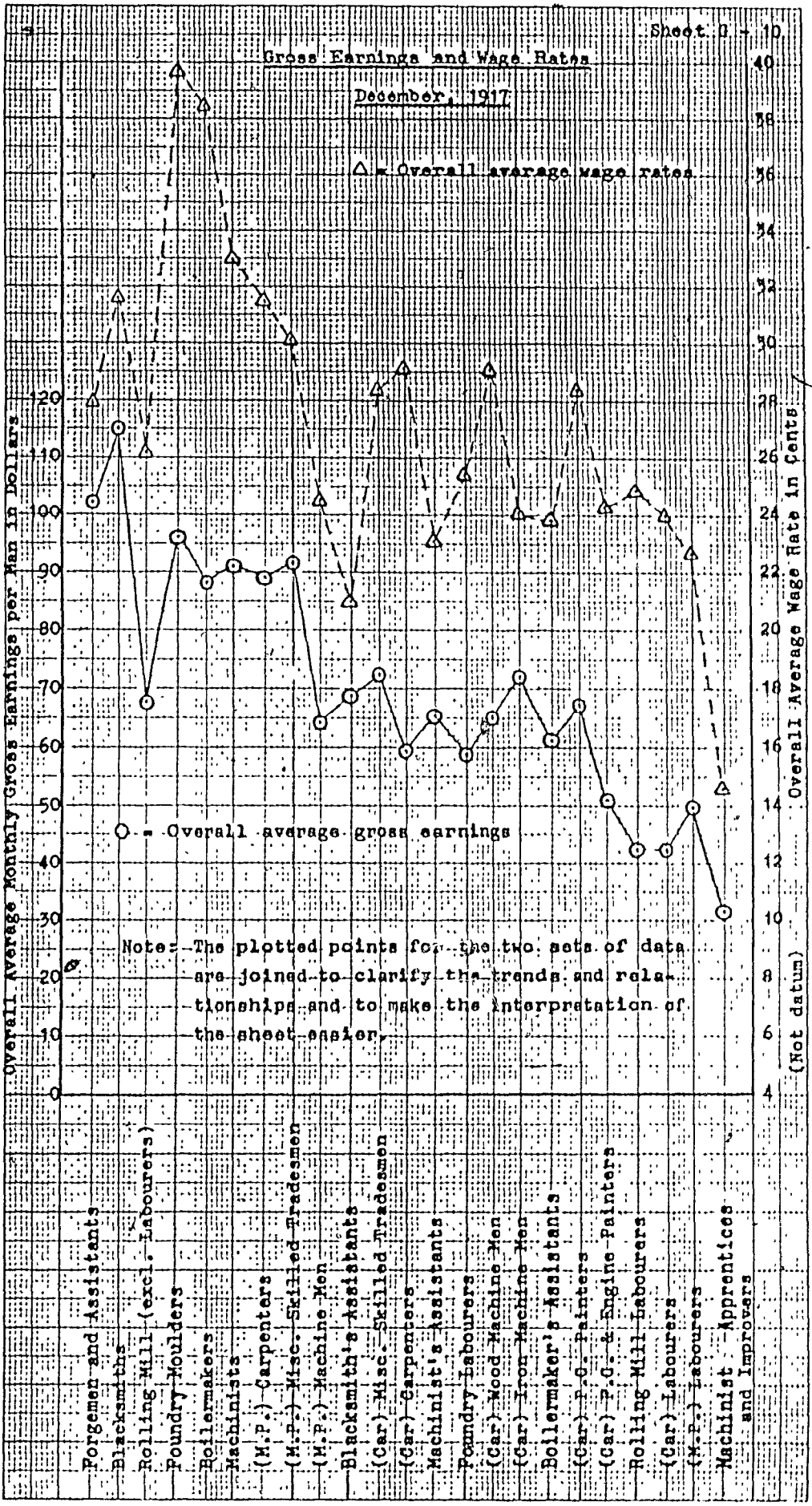
TABLE 7 (continued)

1	2	3	4	5	6	7	8	9	10	11	12	13	14
Car	Wood Machine Men		29	15.6	32.00	32	19 8	40.04	36.50	26	29.1	65.30	60.50
M P.	Painters		-	-	-	39	16 7	42 37		25	25 2	63 38	70.50
Car	F C. Painters	)				14	16 4	37 49	)	18	26 3	61 28)	
Car	P. C Painter's Assts.	)14.5	29	14 4	29.38	24	15 5	34 92	) 33 50	36	23 3	46 36)	55.50
M.P.	Boilermaker's Assistants		94	13.5	30.44	102	14 3	37 48	35.00	82	23 8	61.22	57.50
M.P.	Machinist's Assistants		75	12.7	33.41	209	14 6	35 75	29.00	200	23 1	65.58	63.14
M.P.	Foundry Fettlers		39	12 6	32.17	38	15 2	35 38	37 00	30	25 5	58 96	61.00
Car	Labourers	12.4	93	12.2	24.38	118	14 9	29 79	28 00	115	24 0	42 47	46.00
M.P.	Labourers		128	11.3	24 15	163	14.1	28 60	27 60	179	22 7	49.92	45.65
M.P.	Machinist Apprentices and Improvers		68	6.9	18.33	126	11.2	29 50	21 00	154	14 6	31.74	34.50

* - Based on the cost-of living index


Sheet G - 8
Gross Earnings and Wage Rates
January, 1902
Δ = Overall average wage rates
O = Overall average gross earnings
Overall Average Monthly Gross Earnings per Man in Dollars
Overall Average Wage Rate in Cents
(Not datum)
0
10
20
30
40
50
60
70
80
90
100
110
120
4
6
8
10
12
14
16
18
20
22
24
26
28
30
32
34
36
38
40
Forgemen and Assistants
Blacksmiths
Rolling Mill (excl. Labourers)
Foundry Moulders
Boilermakers
Machinists
(M.P.) Carpenters
(M.P.) Misc. Skilled Tradesmen
(M.P.) Machine Men
Blacksmith's Assistants
(Car) Misc. Skilled Tradesmen
(Car) Carpenters
Machinist's Assistants
Foundry Labourers
(Car) Wood Machine Men
(Car) Iron Machine Men
Boilermaker's Assistants
(Car) R.R. Painters
(Car) P.C. & Engine Painters
Rolling Mill Labourers
(Car) Labourers
(M.P.) Labourers
Machinist Apprentices and Improvers


Sheet 9
Gross Earnings and Wage Rates
January, 1910
Note: The plotted points for the two sets of data are joined to clarify the trends and relationships and to make the interpretation of the sheet easier.
Δ = Overall average wage rates
○ = Overall average gross earnings
Overall Average Monthly Gross Earnings per Man in Dollars
Overall Average Wage Rate in Cents
(Not datum)
0
10
20
30
40
50
60
70
80
90
100
110
120
4
6
8
10
12
14
16
18
20
22
24
26
28
30
32
34
36
38
40
Forgemen and Assistants
Blacksmiths
Rolling Mill (excl. Labourers)
Foundry Moulders
Boilermakers
Machinists
(M.P.) Carpenters
(M.P.) Misc. Skilled Tradesmen
(M.P.) Machine Men
Blacksmith's Assistants
(Car) Misc. Skilled Tradesmen
(Car) Carpenters
Machinist's Assistants
Foundry Labourers
(Car) Wood Machine Men
(Car) Iron Machine Men
Boilermaker's Assistants
(Car) P.C. Painters
(Car) P.C. & Engine Painters
Rolling Mill Labourers
(Car) Labourers
(M.P.) Labourers
Machinist Apprentices and Improvers


Sheet 2
Gross Earnings and Wage Rates
December, 1917
△ = Overall average wage rates
○ = Overall average gross earnings
Note:- The plotted points for the two sets of data are joined to clarify the trends and relationships and to make the interpretation of the sheet easier.
Overall Average Monthly Gross Earnings per Man in Dollars
Overall Average Wage Rate in Cents
(Not datum)
0
10
20
30
40
50
60
70
80
90
100
110
120
4
6
8
10
12
14
16
18
20
22
24
26
28
30
32
34
36
38
40
Forgemen and Assistants
Blacksmiths
Rolling Mill (excl. Labourers)
Foundry Moulders
Boilermakers
Machinists
(M.P.) Carpenters
(M.P.) Misc. Skilled Tradesmen
(M.P.) Machine Men
Blacksmith's Assistants
(Car) Misc. Skilled Tradesmen
(Car) Carpenters
Machinist's Assistants
Foundry Labourers
(Car) Wood Machine Men
(Car) Iron Machine Men
Boilermaker's Assistants
(Car) P.O. Painters
(Car) P.O. & Engine Painters
Rolling Mill Labourers
(Car) Labourers
(M.P.) Labourers
Machinist Apprentices and Improvers

of the average wage rates and average gross earnings for the 26 main job classifications of the Shops will be found for the three study months of January, 1902, January, 1910 and December, 1917. As will be seen, in a few cases partial pay data for January, 1898 have also been included, when available from the Workmen's Time Books.

On graph Sheet G-8, the overall average gross earnings per man are plotted in descending order for January, 1902 for 23 of the major job classifications, representing the majority of the workers in both the Motive Power and Car Departments. On the same sheet, the overall wage rates are also plotted for each job classification. From this sheet it can be seen that the average gross earnings for the month varied from about $70 per man for the forgemen and their assistants at the high end to about $24 per man for the Motive Power labourers at the low end (the machinist apprentices and improvers being ignored as they were in training).

If the order of the job classifications on Sheet G-8 is considered, it will be noted that about the top third of the classifications was filled mainly by highly skilled and trained metal workers. Aside from the anomalous position of the Car Department's miscellaneous skilled metal-working tradesmen, the middle third was filled mainly by less-skilled or semi-skilled metal workers and wood workers, and the bottom third was filled primarily by painters and various categories of labourers or unskilled workers who

were essentially labourers. Considering everything, the order of the classifications reveals more or less the expected relationship of earnings to skill and training.

If the points plotted for average wage rates are considered, however, it is apparent that they are not perfectly correlated with the gross earnings curve. This situation is caused, of course, by the fact that the average gross earnings (the lower curve) did not depend only on the wage rates, but rather on a combination of wage rates, total hours worked and the contract payments that various men received. If the wage rates are re-arranged in strictly descending order (not shown here), it will be found that, while there is a slight shuffle such as the carpenters replacing the rolling mill classifications in the top third and the painters moving into the middle third, the top third of the values still belonged essentially to highly-skilled metal workers, the middle third generally to less-skilled metal and some wood workers and the bottom third mainly to the labouring and near-labouring groups. Thus, whether average gross earnings or average wage rates are being considered, much the same relationships are found.

The gross earnings curve on Sheet G-9 for January, 1910 is plotted in the same order as the data on Sheet G-8. Average monthly gross earnings ranged from $98 per man for the forgemen and their assistants at the top end to about $29 per man for the Motive Power labourers at the bottom. These

are substantially larger than the same values quoted above for January, 1902, and, from a visual comparison of the two sheets, it is indeed evident that the 1910 earnings were generally higher than those for 1902.

As can be seen, while the G-9 earnings curve is definitely descending from left to right, it has a number of peaks caused by the relationship of some of the job classifications to their neighbours having changed since 1902. Thus, the rolling mill operators (excluding labourers) should move ahead of the blacksmiths, the boilermakers ahead of the foundry moulders and the Car Department's miscellaneous skilled tradesmen should advance by four or five spaces and so on, to obtain a smoothly descending curve. However, if these points are re-arranged in true descending order, it is still found that the top third includes all the highly-skilled metal workers, the middle third the carpenters, painters and less-skilled metal workers and the bottom third the labouring and near-labouring groups.

As with the gross earnings curve, so with the points plotted on Sheet G-9 for average wage rates. These points obviously have generally higher values than the same points on G-8 for 1902. They range from a high of 25.4 cents per hour to a low of 14 cents per hour, versus a high of 20.9 cents to a low of 11.3 cents in January, 1902. The larger difference between the high and low (11.4 cents in 1910 as compared to

9.6 cents in 1902) suggests a tendency for the spread between the highest and lowest average wage rates (representing the gap between highly-skilled and completely unskilled workmen) to widen as time passed even though the low-end rates (in percentage terms) increased marginally more than the top rates did.

If the wage rate values on Sheet G-9 are re-arranged in descending order, it is found that the top third, while still consisting mainly of highly-skilled metal workers, also included carpenters (who were also present in 1902) and, for the first time, a painting group (the passenger car painters). One group of skilled metal workers, the Motive Power miscellaneous skilled tradesmen, has slipped down to the middle third which otherwise still consisted of less-skilled metal workers, wood workers and painters. The bottom third still essentially represented the labouring groups.

On Sheet G-10, portraying the situation in December, 1917, the average gross earnings curve (still plotted in the 1902 order), displays more anomalies. The forgemen and their assistants have yielded pride of place for having the highest average gross earnings to the blacksmiths whose earnings of $115 per man for the month at the high end compare with about $42.50 per man for the Car Department labourers at the low end. These amounts are obviously higher than the similar figures for January, 1910 and, again, a

visual comparison between sheets confirms that the G-10 values are considerably higher than those on G-9.

While the general structure and relationships on G-10 are the same as in previous years, it is noteworthy that some of the metal-working 'trades' assistants, such as blacksmith's and machinist's assistants, have worked their way upward into the middle third while the bottom third now includes some carpenter and painting groups displaced from the middle third, as well as the usual labouring groups.

Referring to the points plotted for average wage rates on Sheet G-10, it is evident that the highest rate was 39.7 cents per hour for the foundry moulders and the lowest (excluding the machinist apprentices) was about 21 cents per hour for the blacksmith's assistants. This latter value seems anomalous as it was below even the Motive Power labourers at about 22.7 cents and, in terms of average gross earnings, as shown above, these assistants were in the middle third of the job classifications. The spread of about 18.7 cents between the above extremes (or of about 17 cents if the Motive Power labourers are used as the criterion) compares with the similar spreads of 9.6 cents in January, 1902 and 11.4 cents in January, 1910 that were noted previously. The 1917 spread is so much larger than the other two that it seems difficult to accept it as part of a general trend. However, for the three periods in 1902, 1910 and 1917, the ratios between the lowest and highest rates

were 0.54, 0.55 and 0.53, respectively, or, for practical purposes, they were identical. Thus, in 1917, the relationship between the lowest and highest wage rates was normal but what had changed was the general level of the wage rates: in December, 1917, they were about 50% higher than in January, 1910. By comparison, the 1910 rates were only about 23% higher than in January, 1902. Thus, by 1917, wage rates were rising faster than they had been eight years earlier. However, considering that, by December, 1917, the greatest war in history had been raging for over three years, the 1917 wage levels indicated do not seem to be out of line and, in fact, it is surprising that they weren't higher.

If the average wage rate data on G-10 are re-arranged into descending order, it is apparent that, while the majority of the classifications making up the top third of the rates were still those involving highly-skilled metal workers, several wood-working classifications were now also included. In the middle third the usual wood-worker and painter groups were found in addition to several skilled metal-worker groups displaced from the top third. The bottom third consisted mainly of labouring and other - unskilled, labourer-like groups, but it also included a painter group and two semi-skilled metal-working groups that had been pushed out of the middle third.

The findings of this section can be summarized by saying

that, in the Point St. Charles Shops in the first two decades of the 20th century, whether average gross earnings or average wage rates are taken as the criterion, highly-skilled metal-working tradesmen dominated the top third of any listing of job classifications by descending remuneration level. The middle third consisted generally of less-skilled metal workers and wood-working and painting groups while the labourer and labourer-like job classifications usually fell into the bottom third. Throughout the period there was some indication that some of the wood-working classifications were working their way into the top third at the expense of some of the skilled metal-working groups.

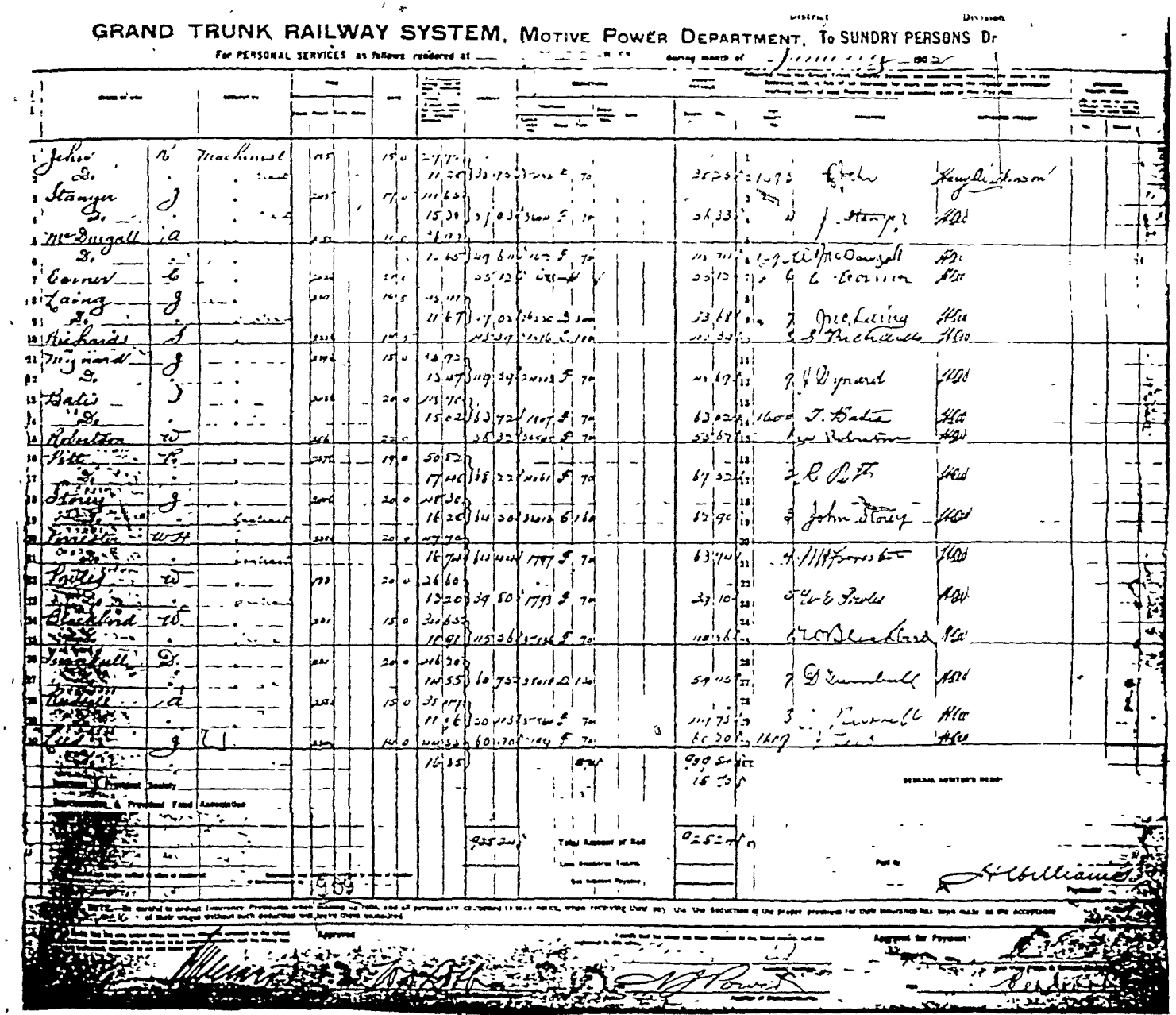
A corollary to these findings is that, as the Motive Power Department was primarily a metal-working area, a considerably larger proportion of the Motive Power employees than of the Car Department employees were in the top third of the wage and earnings levels. The Car Department, which employed the great majority of the wood-working and painting personnel, was strongly represented in the middle third while both departments were about equally represented in the bottom third.

Structure of, and Changes in, Rates of Pay and Gross Earnings

Earnings for each man at the Point St. Charles Shops were calculated by multiplying his hours of work by his rate of pay and adding in any contract pay that was due to him. The

resulting figure represented his gross earnings from which were subtracted deductions such as charges for insurance, superannuation contributions and rent, thus yielding the net earnings or the amount payable to him. This process is shown on the typical Accounts Payable ledger sheet in Figure 1. From this, incidentally, it will be noted that each man had to sign the sheet in acknowledgement of having received his pay. Sometimes these signatures were useful when trying to trace men in other phases of this study.

In addition to wage and earnings data, Table 7 contains predicted average gross earnings for each job classification for 1910 and 1917, obtained by applying the cost of living index to the 1902 earnings (Pelletier, 1917, p. 2). If the average wage rates and the average gross earnings for the various job classifications are plotted against time, a series of very similar curves are obtained such as those for the boilermakers which are shown as an example on graph Sheet G-11. From this series of curves and from Table 7, it is evident that the 1910 gross earnings (and wage rates) were mostly higher than those predicted by cost of living data, but, by December, 1917, many of the earnings and wage rate figures had fallen below the cost of living projections, sometimes by wide margins. This is particularly apparent in the top two classifications in the table in which the actual average earnings for the month were 23% and 37% below those predicted. Despite a few such large deviations, however, the (weighted) average of the actual



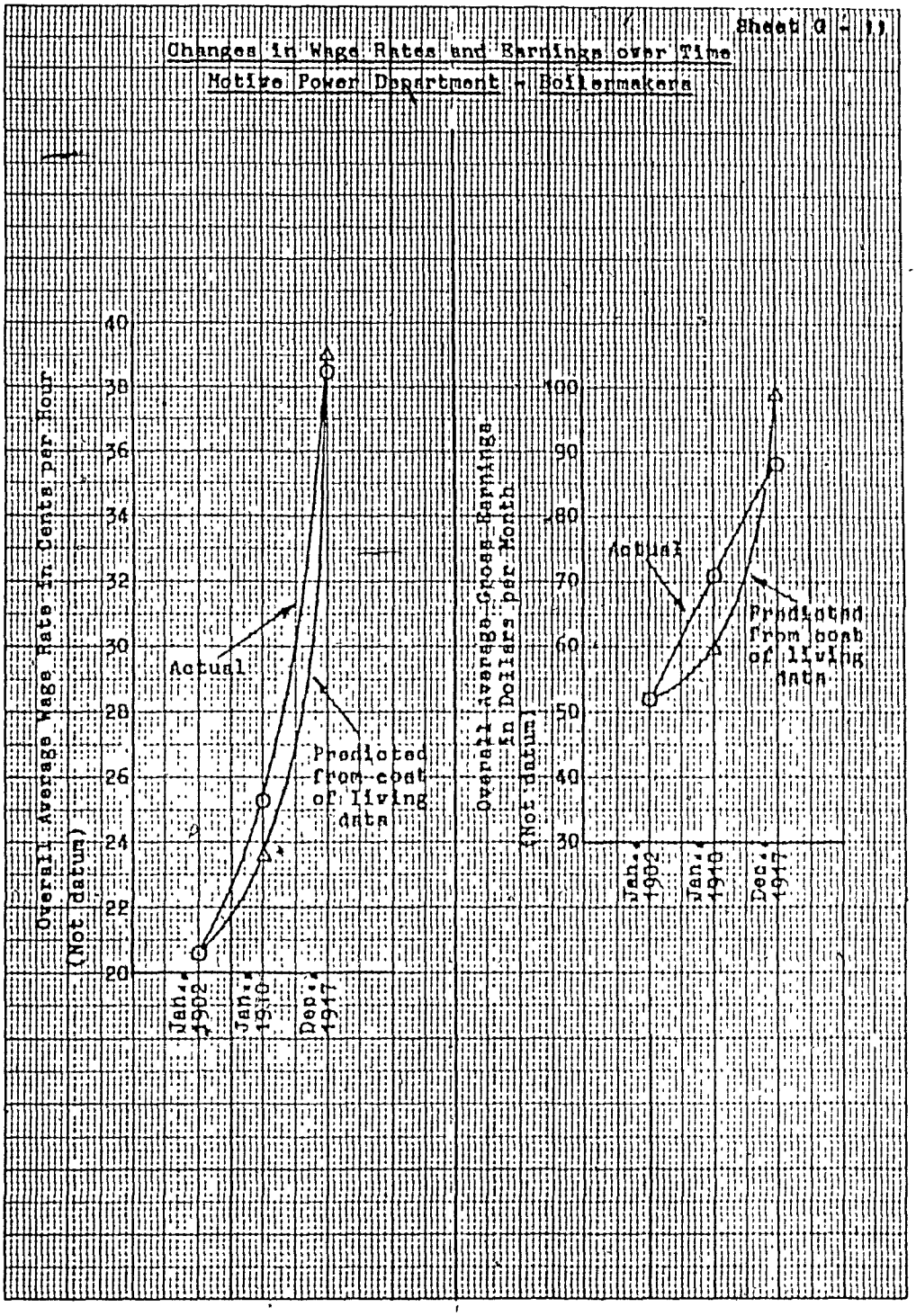
GRAND TRUNK RAILWAY SYSTEM. MOTIVE POWER DEPARTMENT. To SUNDRY PERSONS Dr

For PERSONAL SERVICES as follows rendered at ____ during month of ____ 1903

Typical Accounts Payable Ledger Sheet

Figure 1

Source: Public Archives of Canada, R.G. 30, Vol. 2034, p. M.Ms.No. 13


Sheet 0 - 11
Changes in Wage Rates and Earnings over Time
Motive Power Department - Boilermakers
Overall Average Wage Rate in Cents per Hour
(Not datum)
40
38
36
34
32
30
28
26
24
22
20
Actual
Predicted from cost of living data
Jan. 1902
Jan. 1910
Dec. 1917
Overall Average Gross Earnings in Dollars per Month
(Not datum)
100
90
80
70
60
50
40
30
Actual
Predicted from cost of living data
Jan. 1902
Jan. 1910
Dec. 1917

average gross earnings was within 5% of the weighted average of the indexed figures. Thus, it is evident that, during the study period, the Shops' wage rates and gross earnings pretty well followed the changes in the general economic pattern of the country as indicated by the cost of living curves.

According to the Grand Trunk Railway's Regulations and Rules (1906 and 1912, p. 2):

> Overtime is allowed at the rate of time and a half from 6 P.M. to 6 A.M., and on Sundays; . . . This rule applies only to mechanics and their assistants, rated as such, whether in or out of the shops, who are ordinarily working on regular shifts of 10 hours, but overtime will not be allowed until a full day or night's work has been done. . . . watchmen, together with all labourers and others (except as stated above) working on 10 to 12 hour shifts, do not come under the operation of this rule as regards overtime, but are paid only for the actual hours worked.

It is not known whether this overtime rule was in effect in January, 1902 but it is presumed that it was. However, whether it was or not appears to be of little consequence as nowhere in the Accounts Payable ledgers for January, 1902, January, 1910 or December, 1917 is it evident that overtime rates were in fact paid at the Point St. Charles Shops. This situation is all the more surprising when examples of excessively long working hours can easily be found scattered through the ledger sheets --e.g. for machinists, 341-1/2 hours in January, 1902, 367 hours in January, 1910, or 363 hours in December, 1917, all of which should surely have resulted in some overtime payments.

There may be several explanations for this apparent failure to pay overtime but none of them seems credible. The first may lie in the wording of the overtime rule where reference is made to "mechanics and their assistants" as being the only people eligible to receive overtime pay. This wording may have automatically excluded any job classifications such as machinists, blacksmiths, boilermakers, brass finishers, carpenters, painters and so on that were not formally designated as "mechanics" in the accounting system, although this seems unlikely. A second is the reference in the rule to "regular shifts of 10 hours". As it appears, as already discussed, that most job classifications in the Shops were working on regular shifts of possibly only 7-1/2 to 9-1/2 hours, the fact that they were not on 10-hour shifts may have disqualified men from receiving overtime pay. A third possibility is that overtime payments were calculated, recorded and accounted for in a record other than the Accounts Payable ledger, although this would seem unlikely.

During the study period at least, there were usually ranges of considerable magnitude in the wage rates paid in any particular job classification. This is shown by Table 8 in which the rates paid for ten typical classifications are shown. As can be seen, in January, 1902 the range paid between the highest and lowest rates varied from 13 cents for the machinists, boilermakers and blacksmiths to 3 cents for the Motive Power labourers. By December, 1917, in most cases the ranges had widened, running from 30 cents for the

RANGES IN HOURLY WAGE RATES IN TYPICAL JOB CLASSIFICATIONS IN CENTS — TABLE 8

Classification	January, 1902			January, 1910			December, 1917		
	Low	High	Average	Low	High	Average	Low	High	Average
Machinist	12	25	18.7	17	30	22.3	23	53	33
Boilermaker	14	27	20.6	20	32	25.3	27	55	38.5
Blacksmith	15	28	20.9	22	32	25.4	26	43	31.6
Forgeman	13-1/2	28	23.1	26	33	29.8	36	38	36.7
P.C. Carpenter	)			16	27-1/2	21.4	25	38	29.5
	) 15	22	17.3						
F.C. Carpenter	)			17-1/2	23-1/2	20	26	38	28.9
P. C. Painter	12	20	16.1	17	26	20.8	28	40	28.4
F. C. Painter	12	20	14.4	16	21	16.4	25	37	26.3
Car Labourer	8	14	12.2	10	16	14.9	21-1/2	25	24
M.P. Labourer	10	13	11.3	10	17	14.1	17	25	22.7

machinists at the top of the list to 3-1/2 cents for the Car Department labourers near the bottom. The wartime conditions of this latter period may have been the main cause of these widened ranges.

After the wage rates and hours worked, the remaining important factor in determining earnings was the contract pay. It is believed that these "contracts" were a form of piece-work payment scheme (Regulations and Rules, 1906, p. 5) but details concerning this particular scheme are not available. Much interest in using piece-work schemes in railway shops was generally evident in railway trade journals from about 1895 to 1900 (e.g. The Railroad Gazette, 1896, p. 363). It is not known when the Grand Trunk Railway adopted its scheme, but it was definitely in use by 1902 and taking part in it may have been voluntary, at least in its earlier stages (Regulations and Rules, 1906, p. 5). However, by 1907 and perhaps earlier, working under a contract was obligatory, if desired by the Company (Ibid., 1907, p. 3).

In January, 1902, in 23 job classifications which contained 83% of the total Shops' payroll, 35% of the employees worked under a contract. If this is broken down, it is found that, of the 23 classifications analyzed, 43% of the men in Motive Power classifications were under contract versus only 20% in Car Department classifications. As the Motive Power Department consisted primarily of metal workers and the Car

Department of wood workers and painters, these splits seem to indicate that, in the beginning at least, piece-work schemes may have been more applicable to, and more advantageous for, metal-working applications than for wood-working applications.

By January, 1910, in 26 job classifications, which also contained 83% of the total Shops' payroll, 66% of the employees were working under contract. Broken down, this yielded 17 Motive Power classifications in which 71% of the employees were contract workers and nine Car Department classifications in which 56% of the workers were receiving contract pay.

In December, 1917, in the same 26 classifications (which then included 74% of the total Shops' payroll), 67% of the workers had work contracts. If this is broken down, it is found that the 17 Motive Power classifications had 65% of their personnel under contract, or 6% less than in 1910. In the nine Car Department classifications, 70% of the men (or 14% more than in 1910) were under contract. Thus, by the end of the study period, approximately two thirds of the workers in both of the Shops' departments were under contract.

Of all the categories of workers examined, the labouring groups appear to have been the least well-adapted to piece-work payment schemes as, even in December, 1917, only 35% of the labourers in the Shops received contract pay.

This is understandable as, very often, a labourer's work is not repetitive and he may be assigned to many different jobs in the course of a day or from day to day, making it very difficult to measure his work and decide what standard labouring output should be.

As with wage rates, there were wide ranges in the amounts of contract pay received, both within a job classification and between classifications. This is shown in Table 9 in which the low, high and average amounts received by the workers in ten typical job classifications are listed for the three main study months. In some cases very substantial amounts of contract pay were received. In all three periods, there were some individuals in groups such as the forgemen, machinists, boilermakers and blacksmiths who received more in contract pay, alone, than many labourers earned in a month. It is noteworthy that the forgemen and the blacksmiths always averaged higher contract pay than did any other group. In all of the three study months, the forgemen (and their assistants) all received contract pay and, for two of them (January, 1910 and December,1917), all the blacksmiths did likewise. A final observation of interest is that, throughout the study period, the contract pay received by the machinists, boilermakers, blacksmiths and forgemen of the Motive Power Department exceeded that received by the carpenters and painters of the Car Department by substantial amounts.

RANGES IN CONTRACT PAY IN TYPICAL JOB CLASSIFICATIONS IN DOLLARS TABLE 9

Job Classification	January, 1902			January, 1910			December, 1917		
	Low	High	Average*	Low	High	Average*	Low	High	Average*
Motive Power Department									
Machinist	0.81	21.52	13.81	3.56	28.41	16.71	5.77	54.88	30.63
Boilermaker	0.50	28.11	13.70	9.00	32.51	18.93	8.27	38.16	25.22
Blacksmith	2.67	35.00	18.38	8.50	33.12	24.34	28.91	76.55	46.39
Forgeman	16.02	41.11	28.51	31.43	61.13	47.07	46.33	46.49	46.39
Labourer	6.39	8.16	7.48	6.91	12.71	9.94	6.75	24.83	10.38
Car Department									
P.C. Carpenter	1.24	15.59	4.53	0.40	33.76	11.24	2.82	28.53	19.54
F.C. Carpenter				0.50	16.81	6.24	0.21	37.05	11.46
P.C. Painter	-	4.07	4.07	1.13	22.21	11.92	3.09	28.38	18.06
F.C. Painter	1.09	10.41	7.45	4.47	5.80	5.13	12.47	24.68	18.37
Labourers	1.44	11.56	4.08	0.45	13.71	2.45	0.64	24.23	12.97

* i.e. average contract pay per man for those receiving contract pay, not for all workerrs.

COMPARISON OF WEIGHTED AVERAGE WAGE RATES FOR WORKERS WITH NO WORK CONTRACTS WITH WORKERS HAVING WORK CONTRACTS FOR 26 TYPICAL JOB CLASSIFICATIONS — TABLE 10

Study Month	Workers with No Work Contract		Workers with a Work Contract		Difference between Columns A & B	
	No. of Men Analyzed	Average Wage Rate in Cents A	No. of Men Analyzed	Average Wage Rate in Cents B	Cents	%
January, 1902	1,000	14.90	544	15.43	+0.53	+3.6
January, 1910	719	16.89	1,385	18.38	+1.49	+8.8
December, 1917	629	27.15	1,253	25.41	-1.74	-6.4

AVERAGE GROSS EARNINGS FOR ANGLOPHONES AND FRANCOPHONES EMPLOYED IN SELECTED JOB CLASSIFICATIONS

TABLE 11

Job Classification	January, 1902					January, 1910					December, 1917				
	No. of Workers			Earnings		No. of Workers			Earnings		No. of Workers			Earnings	
	Total	Anglo-phones %	Franco-phones %	Anglo-phones $	Franco-phones $	Total	Anglo-phones %	Franco-phones %	Anglo-phones $	Franco-phones $	Total	Anglo-phones %	Franco-phones %	Anglo-phones $	Franco-phones $
Motive Power Department															
Foundry Moulders	60	40.0	53.3	61.02	52.21	66	36.4	54 5	65.70	60.99	45	35.6	51.1	95 86	97 54
Machinists	160	85.6	11.3	48.92	40.90	260	86.2	11.9	80 51	59.84	197	74.6	13.7	92.30	92 96
Machinist's Assts.	75	78.7	20.0	33.89	30.78	209	72.2	7.2	35.88	36.93	200	53 0	19.5	64 59	69.78
Carpenters	16	62.5	37.5	49.51	42 68	32	68.8	28.1	53.23	47.92	34	64 7	23.5	88.19	93.71
Painters	-	-	-	-	-	39	64.1	20.5	44.36	47.59	25	68.0	20	68.49	58.76
Labourers	128	54.7	32.0	23.60	25.13	163	25.8	5,5	29.60	30.24	179	10.1	5,6	42.89	47.97
Car Department															
Carpenters	263	31.6	65.0	36.15	35.31	380	38.2	48.4	46.77	42 33	273	23.8	54.9	62.68	60.38
P.C. Painters	94	30.9	63.8	28.42	29.72	67	29.9	61.2	46.90	50.81	43	23.3	72.1	79.71	63.07
F.C. Painters and P.C. Painter's Assistants	29	20.7	79 3	29 36	29.39	38	28.9	71.1	30 56	38 03	54	29 6	61 1	51.26	50.83
Labourers	93	46.2	47.3	25.50	23 23	118	56.8	31.4	29.79	29.30	115	27.8	36 5	42.70	41 81
Total	918					1,372					1,165				
Proportion of Total Shops' Payroll	49.8%					54.3%					45.8%				

Previously it was determined that there was no major difference between the monthly hours of work of those workers on contract and the hours of those not on contract. Now, this leads to the question of how the wage rates received by contract workers in any job classification compared with those of non-contract workers in the same classification. The results of an analysis of the wage rates of both groups for the 26 classifications listed in Table 7 are summarized in Table 10. As can be seen, in January, 1902, the overall average wage rate for the workers with work contracts exceeded that for those without contracts by 0.53 cents per hour or by 3.6%.

For January, 1910, as the table shows, the wage rate advantage for those with work contracts increased to 1.49 cents per hour or 8.8%. This, in conjunction with the above findings for January, 1902 might seem to indicate that generally higher wage rates applied for those working under contract. However, the findings for December, 1917 seem to contradict this as, in that month, the with-contract workers received 1.74 cents per hour or 6.4% less than those with no contract. The reasons for these varying indications are not clear. The advantage (as far as wage rate is concerned) for those on contract in January, 1902 was relatively small and perhaps could be ignored. The January, 1910 findings might have been a freak result that did not reflect the true situation or the December, 1917 figures might have been distorted and therefore not truly representative due to the

wartime conditions that prevailed. Therefore, it would seem that, before a definite statement could be made as to how wage rates for workers on contract compared with those for non-contract workers, further investigation would have to be made.

Earnings versus Ethnicity

The ethnic distribution of workers in various job classifications in the Point St. Charles Shops has been considered previously. However, a question separate from the actual distribution is whether essential differences in earnings, based on ethnicity, existed in the various areas of the Shops. In addition to anglophones and francophones, men of other national origins from Central and eastern Europe were also present in the Shops, especially in unskilled categories such as the Motive Power labour gangs in 1910 and later. However, the main interest here is the anglophone/francophone relationship and any difference in status or treatment that may have existed or may be observed between these two groups. Thus any other ethnic groups will be ignored.

This question has been investigated by considering a selected group of ten job classifications from the Shops as indicated in Table 11. The group includes men from one of the two specialized Motive Power operations -- the foundry and the rolling mill -- and all the Motive Power Department's machinists and their assistants who, in total,

represented one of the Shops' anglophone strongholds and who were also one of its largest groups. As can be seen from the table, the machinists were over 85% anglophone in January, 1902 and January, 1910. By December, 1917, this proportion had slipped a bit to 75%, but it will be noted that the difference was not made up by a corresponding increase in the francophone contingent, but, rather, men of other nationalities filled the gap. (It is not suggested here that this necessarily indicated a bias against francophones in the machinists' group. The simple fact may have been that the other nationalities may have been the only men available that had the required qualifications). The machinist's assistants, during the study period at least, were never quite as strongly anglophone as the machinists themselves but they always had an anglophone majority. Their francophone component never exceeded 20% so that, in January, 1910 and December, 1917, the other nationalities making up the balances of the groups were considerably stronger numerically than the francophones themselves.

To compare with the strongly anglophone machinists, the various carpenter and painter classifications of the Car Department were also chosen for the study group as they were always strongly francophone, their numbers were much the same as those of the machinists and machinist's assistants combined, and they also represented the middle earnings level (whereas the machinists, of course, represented the upper earnings level). The group was then brought up to ten

job classifications by including all the labourers of both departments (as representatives of the lower earnings level) and finally, also, the small Motive Power carpenter and painter groups. The latter were primarily anglophone rather than francophone and it seemed that, as a consequence, this might furnish some interesting comparisons with the other, larger, mainly francophone carpenter and painter groups. As can be seen from Table 11, the ten job classifications in this study group included approximately half of the hourly-paid workers in the Shops.

If attention is directed to the earnings information in the table, it is seen that, in January, 1902, for all the Motive Power categories but the labourers, there were pronounced differences between the average gross earnings of the anglophones and the francophones, with those of the former always being greater. For the Motive Power labourers and all the Car Department classifications, the differences were only modest or negligible and, in three cases out of five, they favoured the francophones rather than the anglophones.

In January, 1910, it is seen that the 1902 relationships had changed, some differences that, originally, were very pronounced, now appearing to be relatively minor while others, that had been very small, were now quite large. December, 1917 displayed much the same pattern of there being no consistency or pattern from period to period in either the magnitude or the direction of the differences for

any of the job classifications. Thus, from a visual examination of the data, it can only be said that, while bias may have existed favouring either the anglophones or the francophones at particular times or with particular groups, there is no evidence indicating that it acted consistently in a particular direction over the long term.

To try to obtain a more precise picture of this situation, a series of Student's t-tests were run on the earnings data from which Table 11 had been prepared, it having been determined that these data were more or less normally distributed. The formula used to determine the t-values was that shown by Ebdon[1] (1978, p. 58). The t-test results are listed in Table 12. With this test, which provides a mathematical method of comparing means, the null hypothesis, H_0, must be accepted unless the calculated value of t exceeds a given critical value (Ibid., p. 170). H_0 states that there is no significant difference between two means and that any apparent difference between them is due purely to chance. The alternate and contrary hypothesis, H_1, which can only be accepted if H_0 is rejected, states that there is a significant difference between the two means and that each represents a body of data that comes from different populations that have no relation to one another.

A review of the data in Table 12 indicates that, in only three out of the 29 instances listed, must the null hypothesis, H_0, be rejected, these being the foundry

STUDENT'S t-TEST ON THE EARNINGS DATA FOR THE TEN SELECTED JOB CLASSIFICATIONS SHOWN IN TABLE 11 — TABLE 12

Job Classification	Period	t-Value	Critical Value*	Accept or Reject H_o
Motive Power Department				
Foundry Moulders	January, 1902	2.12	2.01	Reject
	January, 1910	1.28	2.01	Accept
	December, 1917	0.42	2.02	Accept
Machinists	January, 1902	1.88	1.96	Accept
	January, 1910	0.22	1.96	Accept
	December, 1917	0.10	1.96	Accept
Machinist's Ass'ts.	January, 1902	1.25	2.00	Accept
	January, 1910	0.53	1.96	Accept
	December, 1917	1.33	1.96	Accept
Carpenters	January, 1902	0.98	2.15	Accept
	January, 1910	0.88	2.05	Accept
	December, 1917	0.65	2.05	Accept
Painters	January, 1910	1.00	2.04	Accept
	December, 1917	0.99	2.09	Accept
Labourers	January, 1902	0.81	1.98	Accept
	January, 1910	0.18	2.01	Accept
	December, 1917	1.07	2.06	Accept
Car Department				
Carpenters	January, 1902	0.88	1.96	Accept
	January, 1910	3.89	1.96	Reject
	December, 1917	0.87	1.96	Accept
P.C. Painters	January, 1902	0.59	1.98	Accept
	January, 1910	0.77	2.00	Accept
	December, 1917	3.16	2.02	Reject
F.C. Painters and P.C. Painter's Assistants	January, 1902	Nil	2.05	Accept
	January, 1910	1.60	2.03	Accept
	December, 1917	0.07	2.02	Accept
Labourers	January, 1902	1.57	2.01	Accept
	January, 1910	0.35	1.98	Accept
	December, 1917	0.21	2.00	Accept

* - Two-tailed at 0.05 significance level

moulders in January, 1902, the Car Department carpenters in January, 1910 and the Car Department P.C. painters in December, 1917. For all the other 26 instances, H_0 must be accepted which means that, for these 26 job classifications and the periods that they represent, there is no statistically significant difference between the means of the anglophones and the francophones. Statistically, therefore, in each instance, these two groups both belonged to the same population and any apparent differences in the earnings of the two groups must be attributed to chance and not to design.

Regarding the three instances where H_0 was rejected, it is noted that, in each case, the earnings of the anglophones were higher than those of the francophones as follows:

	Difference between anglophones and francophones
Foundry moulders - January, 1902	$8.81
Car carpenters - January, 1910	4.44
Car P.C. painters - December, 1917	16.64

Regarding the foundry moulders, investigation shows that, on the Accounts Payable ledger sheets, they included two types of moulders:

(a) one type designated as 'moulders' which included most of the anglophones and about 25% of the francophones. These men were paid about 22 cents per hour but frequently they received no contract pay;

(b) another type designated as 'bench moulders' which

included most of the francophones and the remaining few anglophones. These men were paid about 16 cents per hour but they always received contract pay.

Thus, it would appear that these two ethnic groups were basically working on different jobs at different rates of pay thus resulting in the situation high-lighted by the t-test. Probably the two groups should have been treated for t-test purposes as separate job classifications in which statistically significant differences in earnings would have been expected, rather than having lumped them together in one classification. This was done, of course, wherever possible in analysing the payrolls, to avoid having a great many very small classifications which would have made the analysis less manageable and less meaningful.

In thus disposing of the foundry moulders of 1902 as a possible instance of earnings being influenced by ethnicity, it does not, of course, answer the question of why the two types of moulders exhibited such apparently pronounced bias in their ethnic make-up. The answer to this is not known. Perhaps there were perfectly good and logical reasons to account for it or perhaps it was, in fact, an example of true ethnic bias or discrimination.

There is no easily discernible reason that can account for the above difference for the Car carpenters in January, 1910. Actually, this difference was not really very large

but, in conjunction with the large number of carpenters (380), it was sufficient to result in a t-value greater than the critical value and, therefore, to cause rejection of H_0. In actual fact, there is nothing in the raw data that indicates discrimination or bias for or against either the anglophones or francophones in this classification in January, 1910 and therefore the result will be ignored.

The rejection of H_0 for the Car P.C. painters of December, 1917 would seem to be due to the relatively small number of anglophones (10) in the sample and to the fact that, on the average, each of them worked about 37 hours more than the average for the whole crew in the month. The reason for this is not known and cannot be ascertained. Possibly it was due to favouritism or possibly it was not. However, based on the t-values for this group for the previous periods of January, 1902 and January, 1910, it was probably a freak, non-repetitive situation and it will also be ignored.

The criterion used in Table 12 in accepting or rejecting H_0 was the two-tailed critical value. Considering all the results shown in Table 12 as well as the visual impression gained from an examination of Table 11, it must be concluded that there is little or no indication of any bias based on ethnicity in the earnings of the anglophones or francophones working at the Point St. Charles Shops during the study period.

Summary

The discussion in this chapter may be summarized as follows:

Between 1880 and 1917 at least, the majority of men in the Shops worked about 7-1/2 to 9 hours per day or about 45 to 55 hours per week. There was usually some scheduled work on Saturdays but none on Sundays. However, in contrast to these relatively modern hours for most of the men, there were always small numbers of men in a few occupations such as watchmen or boiler men who worked excessively long hours, sometimes amounting to more than 400 per month.

Dating probably from about 1900 or slightly before, many of the men in the Shops worked on contract rather than against straight wage rate systems. While it might be supposed that the contract workers would have had to work a different number of daily or weekly hours than the simple wage rate men, there is no clear evidence of this, and the working hours of the two groups seem to have been much the same.

Generally speaking, and whether using average wage rates or average gross earnings (both arranged in descending order) as the guiding criterion, highly skilled, metal-working tradesmen were to be found in the upper third of the job classifications, less-skilled metal workers, wood workers and painting classifications filled the middle third and the labouring and near-labouring classifications fell into the bottom third. From this it followed that, as the Motive

Power Department had an unusually high proportion of metal workers, it was strongly represented in the upper third of the classifications while the Car Department with its high proportion of wood workers and painters, appeared more strongly in the middle third.

Gross earnings were the product of the interaction of wage rates, hours of work and contract pay. While provision for overtime pay existed, it does not appear to have been in effect in the Shops during the study period unless its application and implementation were hidden in some manner.

For every job classification, there was a fairly wide range in the wage rates paid, these ranges being as great as 13 cents per hour for the machinists and 3 cents per hour for the labourers in 1902, and 30 cents per hour for the machinists and 3-1/2 cents per hour for the labourers in December, 1917. Aside from a few apparent drops in rate from 1898 to 1902, average wage rates rose steadily from 1902 to 1917.

During this period, the proportion of the Shops' workers working under contracts rose from about one third to two thirds, with the labouring classifications being the least involved, at about one third by 1917. As with wage rates, there was a wide range in the amounts of contract pay received. In January, 1902, this range was as wide as from $0.50 to $41 and, in December, 1917, it ran from $0.20 to

$76.55 (not within the same job classifications in either case).

For two out of three study months from 1902 to 1917, the indications were that the wage rates of those receiving contract pay were slightly higher, on the average, than those not receiving contract pay. However, this indication was contradicted by that of the third month and thus it is concluded that further investigation with more data would be needed to provide a definite answer.

The pattern of the changes in average gross earnings for different job classifications from 1902 to 1917 closely followed that of changes in wage rates. In general, actual average gross earnings either equalled or bettered those predicted by the change in the cost of living in January, 1910 but, by December, 1917, they had fallen slightly behind the cost of living. However, the differences between the actual and predicted earnings were so small as to be hardly significant.

Based upon an analysis of the earnings of the workers in ten selected job classifications (which included about half the Shops' payroll), it is concluded that there is little or no evidence of bias based on ethnicity that significantly affected the earnings of anglophones as compared to francophones in the Shops.

Footnotes

[1] $$t = \frac{\left| \bar{x} - \bar{y} \right|}{\sqrt{\left[\frac{\Sigma x^2}{n_x} \right] - \bar{x}^2 \over n_x - 1 + \left[\frac{\Sigma y^2}{n_y} \right] - \bar{y}^2 \over n_y - 1}}$$

where x = earnings of anglophones

y = earnings of francophones

n_x and n_y = numbers of anglophones and francophones, respectively

$\bar{x}$ and $\bar{y}$ = the means of the x and y values, respectively

Chapter Five

Persistence

Persistence is the measure of the degree to which workers stay in the same job classification (i.e. job persistence) or with the same employer (company persistence) or in the same town or region (geographical persistence) or even in the same dwelling (residential persistence) over a given period of time. The present study is concerned particularly with job persistence (with the same employer) and involves the determination of the degree to which workers in the Point St. Charles Shops stayed in the same job classifications in the Shops over given periods of time. It is obvious that this form of persistence will usually exhibit lower rates than company or geographical persistence because as soon as a worker leaves a particular job classification, his persistence in that classification is broken even though he may well still be working for the same employer in another department or job. Thus, job persistence should normally have lower rates than company persistence and the latter should have lower rates than geographical persistence.

The persistence rate is obtained by dividing the number of workers present at the end of a period who can be identifed as having also been present at the start of the period, by

the total number of workers present in the employment unit at the start of the period. Thus, if, of 100 workers in an employment unit at the beginning of a given period, 50 can be identified as having also been present at the end of the period, the persistence rate for that period in that unit was 0.5 or 50%.

Persistence is the opposite of 'mobility' which is the measure of the degree to which, or the speed at which, workers move from job to job or from employer to employer. While related to 'labour turnover', persistence is not necessarily directly linked with it. This can be realized if one considers the above hypothetical employment unit for which it was determined that the persistence rate was 50%. If each of the 50 workers who did not persist to the end left the unit once during the period, the turnover rate would also have been 50%. However, if, during the period, each of the 50 non-persisting workers had been replaced not once but three times, representing 150 terminations in all, the overall turnover rate for the employment unit in the given period would have been 150%. While this seems to be an anomaly (i.e. a relatively high persistence rate accompanying a high turnover rate), as demonstrated, it is possible for it to happen in certain circumstances.

The type of persistence and mobility or turnover rates that an organization exhibits are; to a considerable extent, a function of the type and age of the organization and of its

workers, the market in which it operates and how successfully it meets the demands of this market. If it is a young, dynamic and expanding company operating in a booming economy, it probably attracts a relatively young and dynamic work-force which, due to its very nature, will tend to sample what the company has to offer and then perhaps move on to other jobs, with other employers and, possibly, in other places. In this case, the company will exhibit low persistence and high turnover rates. However, as the company ages and becomes more mature and set in its ways, and the market place becomes less demanding, its employees may tend to do likewise. As they settle down, they will probably become less venturesome and will tend to try to hold on to jobs, once they have them. As a result, persistence rates will probably rise and turnover or mobility rates will fall. In general, it would seem that, in mature organizations, employment climates that encourage high persistence rates should discourage unusually high mobility or turnover rates among the workers who do not persist to the end. In this case, high persistence rates would accompany low turnover rates which would seem to be the most likely situation that would be encountered with a mature organization like the Point St. Charles Shops that had to meet little outside competition.

Literature Survey

The amount of work that has been reported in the literature on labour persistence, mobility and turnover in the late

19th and early 20th centuries has been relatively small and, where it is available, it usually refers to American rather than to Canadian situations. This is unfortunate as it is possible that the findings in the two countries might have been quite different due to the much larger American market for labour, possible differences in the nature and buoyancy of the American economy as compared with Canada's and the consequent possible greater incentives for American workers to have left their jobs more frequently in the expectation of easily finding others that were better. In Canada, with its much smaller population and labour market, its much smaller range in the types of manufacturing operations and the consequent more restricted job opportunities, workers might well have been less inclined to leave existing jobs for fear of being unable to find attractive replacements.

Such work as has been carried out in this field has usually been directed at determining labour turnover rates rather than persistence rates. It has also been based on determining the experience of entire plants or firms (i.e. the equivalent of company persistence) rather than of departments or smaller employment units such as job classificational groupings (i.e. crews of machinists, carpenters, painters, labourers and so on) within a plant (i.e. the equivalent of job persistence). As a result, inter-group or inter-departmental movements or transfers of workers within a plant or firm have seldom been included and reported in turnover rates. Such rates as are reported in

the literature are therefore probably lower than if the job classificational group or employment unit had been the study unit, as it is in the present work.

Studies available for the period before 1900 refer to a disparate group of shoe factories in Massachusetts, cotton mills in New York, the Pullman car manufacturing plant near Chicago and a steel mill in Pennsylvania. The persistence rates in the first of these industries are difficult to evaluate as the work tended to be seasonal and, therefore, to attract work-forces which were floating and which moved on when the factories shut down each year. Based on studies of census records and city directories, it has been found that over 60% of the labourers disappeared from the shoe manufacturing town of Newburyport, Massachusetts between the 1850 and 1860 censuses (Thernstrom, 1964, p. 85), and that, around 1870 in Lynn, Massachusetts, only 21% of the shoe workers had lived in the town for ten years or more (Dawley, 1976, pp. 135 and 139). Thus, the indication is that, for the mid-19th century American shoe industry, persistence rates were probably not particularly high. However it must be realized that the basic data sources used (manuscript census records and city directories) are crude filters that might well have missed many itinerant workers who returned to the same shoe factory jobs year after year but were never picked up by the recording apparatus.

At the cotton mills in Cohoes, New York, the long-term

turnover rates were very high (i.e. the persistence rate was low) as most of the workers left their jobs when they got married, to find better-paying work elsewhere (Walkowitz, 1978, p. 61).

The Pullman car plant in Illinois was designed and built in the late 1800s as a model plant, one of the owner's intentions being, ironically, to provide a working and living environment that would result in much-lower-than-normal labour turnover rates. However, his success in achieving this goal was debatable. Records indicate that the average length of residence (and therefore of employment, as only employees could live in the company-owned town) was only about four and a quarter years (Buder, 1967, p. 81). While it is difficult to translate this into persistence, it is probable that a relatively small proportion of the workers persisted for fairly long periods of, say, five years or more but that their effect was offset by relatively high turnover rates for shorter service employees.

In the steel industry at Steelton, Pennsylvania, in the eight years between 1880 and 1888, about half the work-force left the steel mill (Bodnar, 1977, p. 56). Actually, this may have represented a fairly low turnover rate (and a high persistence rate) on an annual basis, depending on how many times each worker that terminated his employment during the period was replaced. The records for this mill indicate that

the persistence rates (i.e. company persistence) for native-born Americans and for English, Irish and German immigrant workers were much higher than for Slavic and Italian workers. As, for the ten-year period from 1915 to 1925, 37% of the latter group persisted in the employment of the company (Ibid., p. 58), the (company) persistence rates for the former groups may have been very high indeed. Thus, there seems to be a strong suggestion of unusually high company persistence rates at this Steelton operation but, whether they reflected high job persistence rates, is uncertain.

For the first two decades of the 20th century, Slichter (1919) gives data that suggest that, for large engineering shops, the more skilled the worker, the higher his persistence rate. A good example of this is shown by the following data giving the breakdown of the workers with over five years of service in a mid-west gasoline engine plant in the month of December, 1913 (Ibid., p. 56):

Type of Worker	No. of Men	Proportion of Men With Over Five Years of Service
Skilled Tradesmen	50	42%
Semi-skilled Machine Hands- Better Grade	223	35%
Semi-skilled Machine Hands- Lower Grade	187	26%
Common Labourers	92	14%

As is evident, in this case in the 'over five years of

service' group, there was very good correlation between skill level and persistence. In the 'under five years' group (which included all the rest of the workers), the reverse was true, of course.

The indications in the foregoing table are generally confirmed by the following data from a Chicago metal-working plant for 1916-1917 (Ibid., p. 62):

Wage Rate Bracket	Annual Turnover Rate
Over 30 cents per hour	19.2%
25 to 30 cents per hour	20.0
Below 25 cents per hour	161.0

The higher wage rates obviously indicate the more highly skilled workers who, as shown, had very low turnover rates and thus high (company) persistence rates. However, opposed to this, Slichter (pp. 71-2) also quotes data from some German studies which purported to show that the least stable (i.e. the least persistent) of all workers were both the most highly skilled tradesmen and the common labourers. Regarding the former, the basis for these claims was that, being very much in demand, such men could afford to throw up a job and move on at a moment's notice. While this may have been true for Germany in some circumstances, it does not appear to have been generally recognized in the literature as a similar North American phenomenon. However, it is recognized in Canadian railway shop circles that it was always harder to hold on to highly skilled tradesmen in the

West than it was in the East as, due to a scarcity of skilled men in the West, they were greatly in demand and could afford to seek out the highest-paying opportunities (private communication).

Slichter's main findings of persistence usually varying directly with skill are largely born out by the following data presented by Brissenden and Frankel (1922, p. 76) for an American car-building plant for the year ending May 31, 1918:

Trade	Annual Turnover Rate
Blacksmiths	133%
Cabinetmakers	145
Carpenters	150
Hammersmiths	149
Labourers	543
Machinists	172
Molders	353
Painters	208
Rivetters	631
Rolling Mill Helpers	70
Wood Machine Operators	254
Average for the Whole Plant	283

While these data appear to contain some anomalous figures (such as the rates for rivetters and rolling mill helpers), in general they agree with the pattern that persistence varies directly with the skill requirements of a job

classification. This would appear to be the most important finding that can be obtained from a review of past work in the field of labour persistence and turnover rates.

Methodology

The basic source of the data for this study of persistence in the Point St. Charles Shops is the Grand Trunk Railway's payroll records that are available in greater or lesser detail for the period from 1880 to 1917. The payroll lists for each classification and period to be studied were alphabetized with the help of the computer. Then lists were compared visually so that the names that repeated from one pay period to the next could be identified. Finally the repeating names were counted, totalled and expressed as percentages of the total number of workers present for each classification at the beginning of the study period, thus giving the persistence rates. Persistence data were obtained for two basic study periods. The first, for the Car Department only, ran for 22 years from February, 1880 to January, 1902 and was based on the partial payroll records available in the Workmen's Time Books. The second period, for the entire Shops, ran for 16 years from January, 1902 to December, 1917, being based on the complete payroll records in the Accounts Payable ledgers.

The use of payroll records as the basic source of the data had advantages and disadvantages as compared to using other possible sources. The advantages were that, being the

employer's own records that had all been checked and approved by the company's auditors, it could be assumed that they formed a concentrated, accurate and complete statement down to the last man of all the workers involved at any particular time. Any other source of the data would have involved much more searching and weeding out and, probably, many uncertainties as to the correctness or completeness of the material.

The main disadvantage with the method was that, in the payrolls, the workers were, in general, identified by only one initial (e.g. A. Smith, I. Benoit, L. Bourdon and so on). Christian names or second initials were seldom shown. Therefore, in comparing a list from one pay period with that from another, there was no assurance that two A. Smiths, for example, one on one list and one on the other, were the same person. The study was carried out on the basis that these two men were, in fact, the same person and, in general, there were few indications that suggested that this procedure was erroneous.

A second possible disadvantage or weakness was that, if a worker was identified in two successive payroll lists, it was assumed that he had been present throughout the entire intervening period, with no breaks in service in the particular job classification during that time. This, of course, may not have been so in every case.

Both of the above disadvantages or weaknesses in the method could have been encountered with other methods of collecting the basic data and it is not considered that they invalidate the results obtained. Rather, the latter should be read in light of the possible weaknesses and interpreted as indications of the general range of the persistence rates, and of the fact that the values are relative, not absolute.

Results of the Study

The purpose of this study was to determine the general magnitude of the persistence rates at the Point St. Charles Shops and to compare them, if possible, with like rates for other industrial operations to see if they differed significantly. It was also desired to find out if there were material differences in the tendencies of the anglophone and francophone components of the Shops' work-force to persist in their jobs.

The data for, and the results of, the study are summarized in Tables 13 and 14, while the persistence rates obtained are also plotted on Sheets G-12 and G-13.

Table 13 contains data for the Car Department only, for the period from February, 1880 to January, 1902 and, in addition, similar data for the same job classifications from January, 1902 to December, 1917, for comparison. Table 14 contains data for the whole Shops for the 1902 to 1917 period. The Car Department data in this table (No. 14) are

PERSISTENCE IN THE CAR DEPARTMENT FROM 1880 to 1902 AND FROM 1902 to 1917 — TABLE 13

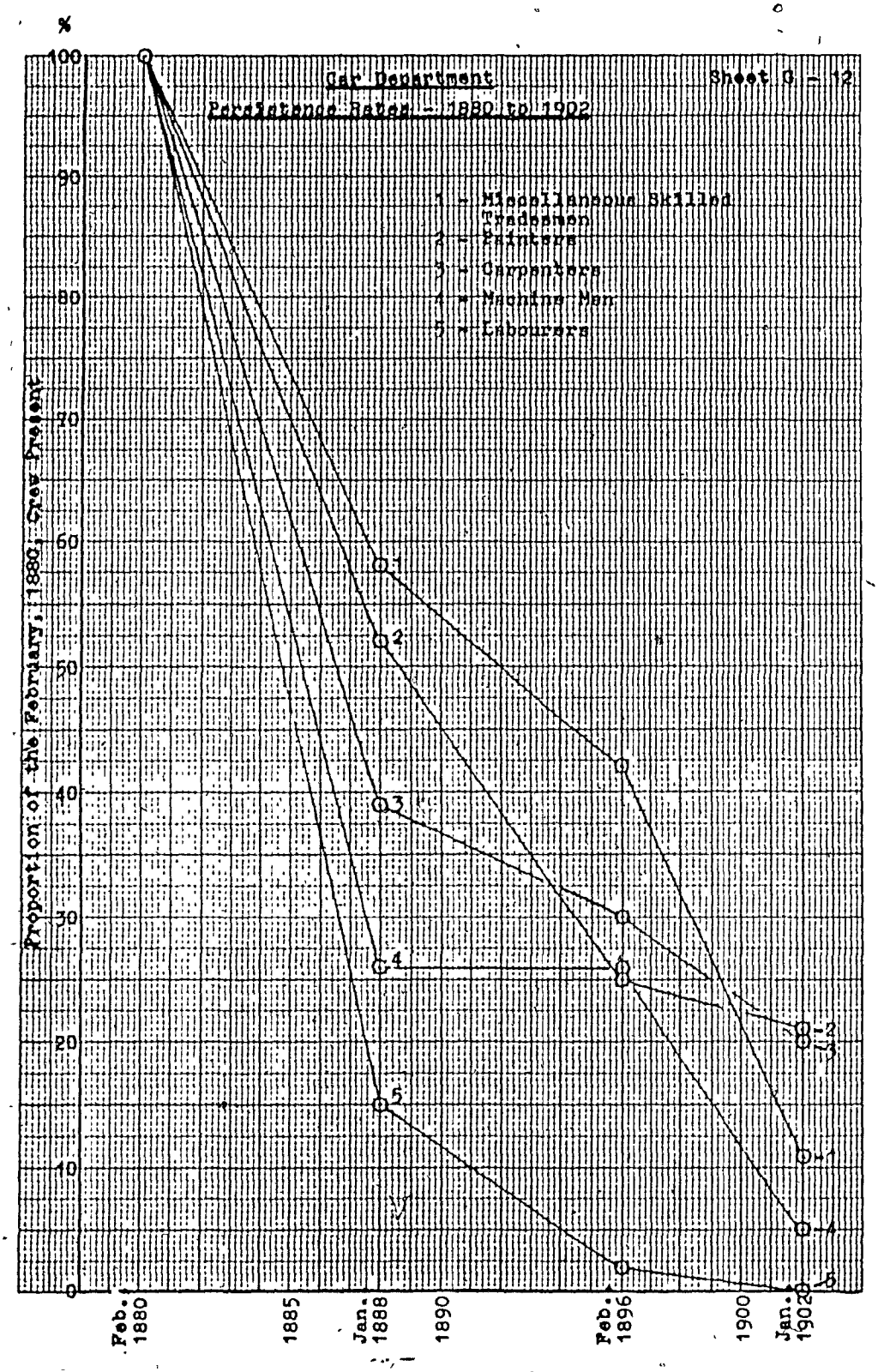
Job Classification	February, 1880 to January, 1902										January, 1902 to December, 1917							
	Feb., 1880		January, 1888 Traced from 1880			February, 1896 Traced from 1880			January, 1902 Traced from 1880			Jan., 1902		January, 1910 Traced from 1902			December, 1917 Traced from 1902		
	No. of Men	A %	No. of Men	Persistence %	A %	No. of Men	Persistence %	A %	No. of Men	Persistence %	A %	No. of Men	A %	No. of Men	Persistence %	A %	No. of Men	Persistence %	A %
Misc. Skilled Tradesmen	19	89	11	58	91	8	42	100	2	11	100	29	83	11	38	91	7	24	90
Machine Men	19	74	5	26	100	5	26	100	1	5	100	53	45	22	42	41	13	25	46
Carpenters	164	54	64	39	52	49	30	49	32	20	50	263	32	110	42	36	34	13	38
Painters	44	34	23	52	26	11	25	18	9	21	22	123	28	40	33	20	21	17	19
Labourers	54	81	8	15	88	1	2	100	Nil	Nil	Nil	93	46	7	8	57	2	2	Nil

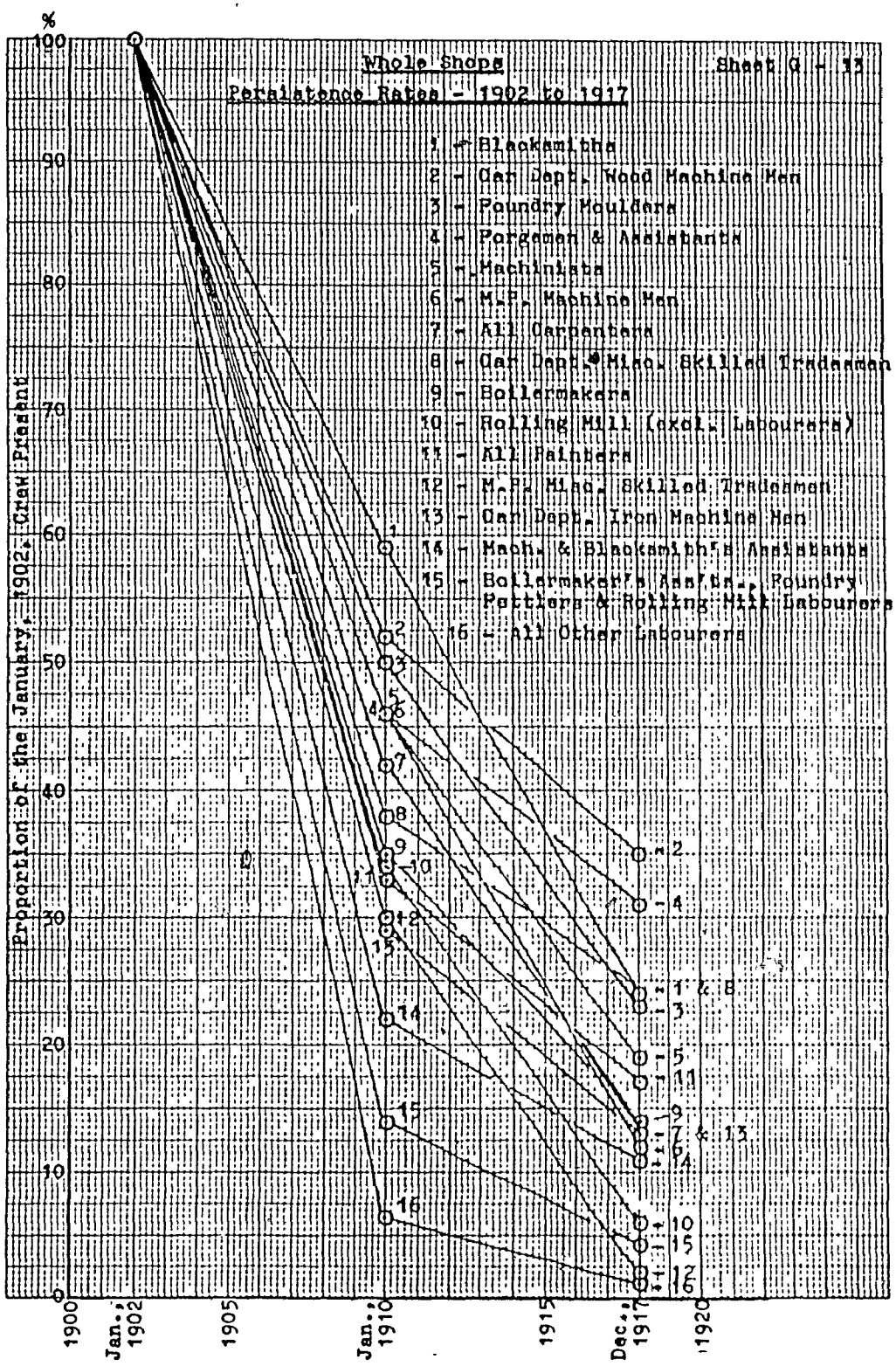
Note: A = Anglophones

PERSISTENCE IN THE WHOLE SHOPS FROM 1902 to 1917 TABLE 14

Dept.	Job Classification	Jan., 1902		Jan., 1910 Men of 1902 Traced			Dec., 1917 Men of 1902 Traced			Significance Test on 1910 A* Proportion	
		No. of Men	A* %	No.	Persistence %	A* %	No.	Persistence %	A* %	Z-Value	Significant ?
M.P.	Forgemen & Assistants	13	77	6	46	83	4	31	75		
M.P.	Rolling Mill excluding Labourers	35	80	12	34	83	2	6	100		
M.P.	Blacksmiths	29	83	17	59	88	7	24	71		
M.P.	Boilermakers	29	90	10	35	90	4	14	75		
M.P.	Foundry Moulders	60	40	30	50	30	14	23	29	+0.93	No
Car	Misc. Skilled Tradesmen	29	83	11	38	91	7	24	90		
M.P.	Machinists	160	86	73	46	92	30	19	90	-1.34	No
M.P.	Misc. Skilled Tradesmen	43	74	13	30	69	1	2	Nil		
Car	P.C. Painters	94	31	32	34	25	17	18	24	+0.64	No
M.P.	Machine Men	83	74	38	46	74	10	12	80		
Car	Iron Machine Men	24	50	7	29	14	3	13	33		
M.P.	Carpenters	16	63	6	38	83	2	13	50		
Car	Carpenters	263	32	110	42	36	34	13	38	-0.76	No
M.P.	Blacksmith's Assistants	79	53	16	20	69	9	11	67		
M.P.	Rolling Mill Labourers	32	63	4	13	50	1	3	100		
Car	Wood Machine Men	29	41	15	52	53	10	35	50		
Car	P.C. Painters	29	21	8	28	Nil	4	14	Nil		
M.P.	Boilermaker's Assistants	94	68	13	14	69	7	7	43		
M.P.	Machinist's Assistants	75	79	18	24	78	8	11	75		
M.P.	Foundry Fettlers & Labourers	39	33	6	15	17	Nil	Nil	Nil		
Car	Labourers	93	46	7	8	57	2	2	Nil		
M.P.	Labourers	128	55	6	5	67	1	1	Nil		

* A = Anglophones


Car Department
Sheet C - 12
Persistence Rates - 1880 to 1902
1 - Miscellaneous Skilled Tradesmen
2 - Painters
3 - Carpenters
4 - Machine Men
5 - Labourers
Proportion of the February, 1880, Crew Present
%
100
90
80
70
60
50
40
30
20
10
0
Feb. 1880
1885
Jan. 1888
1890
Feb. 1896
1900
Jan. 1902


Whole Shops
Sheet G - 13
Peralatence Rates - 1902 to 1917
1 - Blacksmiths
2 - Gen Dept. Wood Machine Men
3 - Foundry Moulders
4 - Forgemen & Assistants
5 - Machinists
6 - M.P. Machine Men
7 - All Carpenters
8 - Gen Dept. Misc. Skilled Tradesmen
9 - Boilermakers
10 - Rolling Mill (excl. Labourers)
11 - All Painters
12 - M.P. Misc. Skilled Tradesmen
13 - Gen Dept. Iron Machine Men
14 - Mach. & Blacksmith's Assistants
15 - Boilermaker's Assistants, Foundry Pattern & Rolling Mill Labourers
16 - All Other Labourers
Proportion of the January, 1902, Crew Present
%
100
90
80
70
60
50
40
30
20
10
0
1900
Jan., 1902
1905
Jan., 1910
1915
Dec., 1917
1920

the same as in Table 13 except that, for two classifications -- machine men and painters -- they are broken down into two subsidiary classifications each. In Table 13, they are combined in single figures to make them directly comparable with the pre-1902 data, which were not broken down into subsidiary classifications in any case.

Comparing the two tables, it is seen that in no case did the persistence rates for the indicated periods (usually eight years or multiples thereof) exceed 60%. In general, where the rates exceeded 50%, it was the smaller groups of men that were involved. A study of Table 13 shows that there were few, if any, obvious patterns or consistencies in the data or that were repeated from one study period to the other (i.e. from 1880-1902 to 1902-1917). Thus, considering the initial eight years of each study period, three of the classifications (miscellaneous skilled tradesmen, painters and labourers) exhibited higher persistence rates in the first period than in the second. However, for the other two classifications (machine men and carpenters), the persistence rates were higher in the second period (1902-1917) than in the first. Weighted averages of the rates shown under January, 1888 and January, 1910 indicate a slightly higher average eight-year persistence in the first (pre-1902) period than in the second but the figures are so close (37.0% and 34.2%) that the difference seems hardly significant. However, on the other hand, the data shown in the table for the second eight years of each study period

indicate that the 16-year persistence rates in February, 1896 were generally higher than those in December, 1917. Thus, it is probably realistic to accept that pre-1902 persistence rates were indeed somewhat higher than those of subsequent periods.

Why persistence rates should differ before and after 1902 is not clear, but the relative availability of jobs may have been an important factor. While, in general, there was at least one major decline in business activity (i.e. a depression) in every decade from the 1870s to the 1930s in the United States, the declines of 1873-1878 and of the mid-1890s were especially serious (Eckler, 1933, pp. 77 and 81). These depressions, of course, occurred either just before or during the 1880-1902 study period and, as a result, the availability of other, attractive jobs in this period may have been limited, thus causing the men in the Shops to tend to hang on to the jobs that they had. If this was so, it may be a confirmation of Slichter's observation (1919, p. 32) that labour turnover rates in times of depression were lower than in times of prosperity.

Another possible explanation may have been that the general level of industrial activity in Canada grew slowly but steadily after the adoption of the National Policy by the Government around 1880. Thus, as new plants and industries appeared, the availability of jobs increased, probably resulting in lower persistence rates in existing jobs as

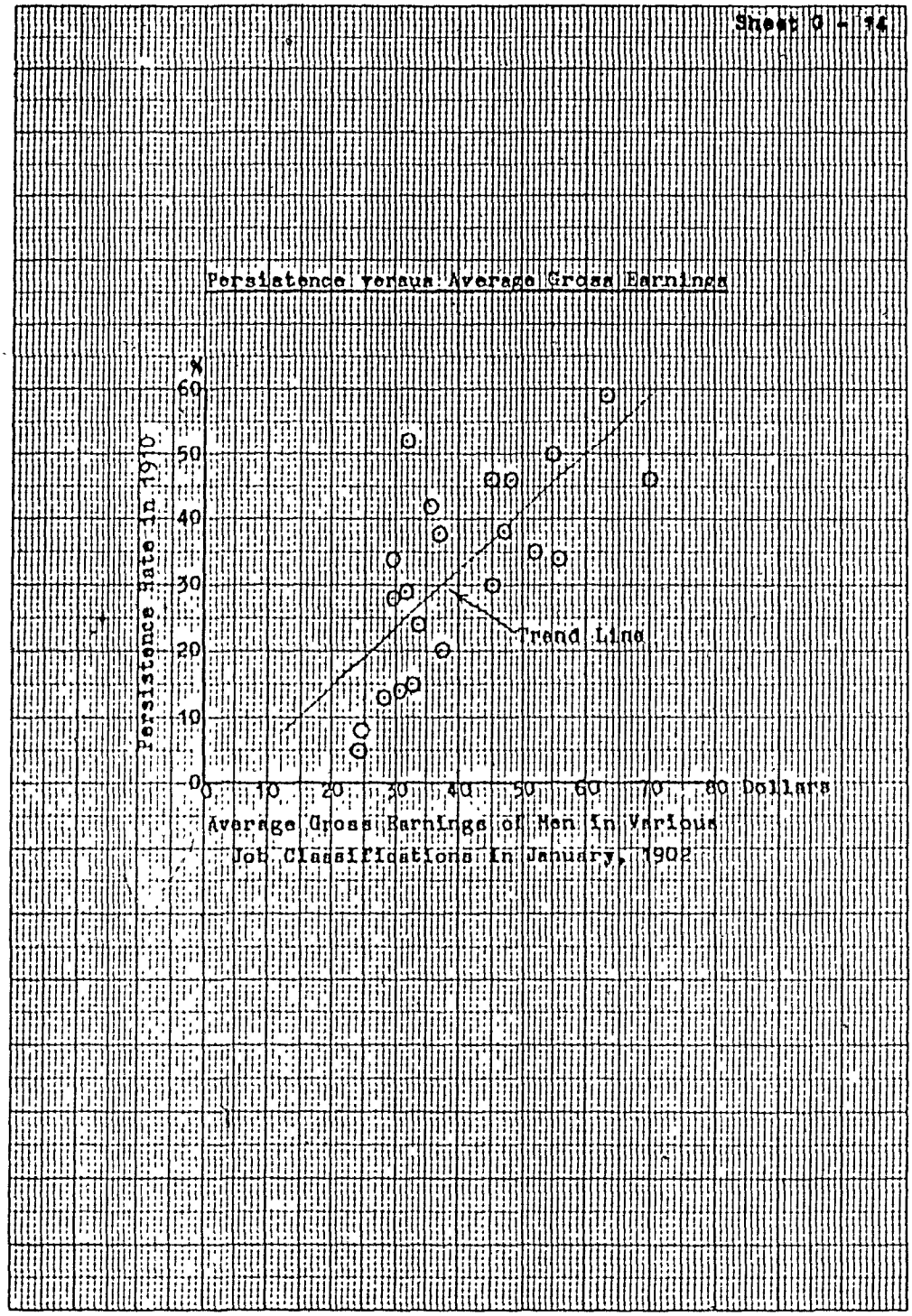
time passed. The combination of restricted job opportunities due to business depressions before 1900 and expanded job opportunities due to the gradual growth of industry are probably the main explanation for higher persistence rates before 1902 and lower rates afterwards.

While the data in Table 13 for the 1880-1902 period may not be strongly suggestive of patterns or relationships, they do give general indications that persistence rates varied more or less with the levels of skill (although there might be some argument whether painters were really more skilled than carpenters). Definitely, for most of the study period, as Sheet G-12 shows clearly, the highest persistence rates pertained to the most highly skilled workers (the miscellaneous skilled tradesmen) and the lowest rates to the least skilled (the labourers).

Considering Table 14 and Sheet G-13, the same rough relationship between the magnitude of the persistence rate and the skill level is generally apparent for the first eight-year period from 1902 to 1910. However, there were some anomalies such as the Car Department wood machine men having the second highest rate in 1910 (and the highest in 1917). This compares with the relatively more skilled Motive Power Department's miscellaneous skilled tradesmen's and boilermakers' only middling rankings in 1910 and relatively low rankings in 1917. The experience indicated for the 1910 to 1917 period was undoubtedly affected by the Great War and

thus probably it cannot be taken as typical. It is most likely that this accounts for the apparent, much more rapid fall-off in the rates from the first eight-year period than happened betweern 1880 and 1896 (Table 13). On Sheet G-13, there seem to be almost two families of curves for the 1910 to 1917 period, one with steeper slopes and the other with flatter slopes. The former includes most of the more skilled workers (blacksmiths, foundry moulders, machinists, boilermakers, metal machine men, carpenters, rolling mill operators and (M.P.) miscellaneous skilled tradesmen), while the latter is largely composed of less-skilled or unskilled workers (painters, tradesmen's assistants and labourers). However, again there are anomalies such as the forgemen's group and the Car miscellaneous skilled tradesmen being in the second family. The implications from the curves on Sheet G-13 are that the persistence rates of the more skilled workers fell off at a lower rate than those of the less-skilled men from 1902 to 1910 but they fell off at a higher rate from 1910 to 1917. The reasons for this may have been either that the more skilled men joined the Armed Forces in the latter period at a higher rate than the less-skilled or that a larger supply of more attractive, alternate jobs for skilled men was available in the second eight-year period. With the data at hand it is impossible to say which alternative was more likely, although both probably contributed.

On Sheet G-14, the 1910 persistence rates for the 22 job


Sheet 0 - 14
Persistence versus Average Gross Earnings
Persistence Rate in 1910
%
60
50
40
30
20
10
0
Trend Line
0
10
20
30
40
50
60
70
80 Dollars
Average Gross Earnings of Men in Various
Job Classifications in January, 1902

classifications listed in Table 14 are plotted against the average gross earnings of the workers in the same job classifications in 1902. While there is some scatter, there is a very definite indication of a relationship between the two variables such as is suggested by the tentative trend line. As average gross earnings varied to a large extent according to the level of skills, this graph can be taken as confirmation that, in 1910, persistence rates bore a fairly strong direct relationship to skill requirements, thus agreeing with the main finding of the literature survey.

The question now remains as to how the persistence rates at Point St. Charles compared with those of other industries. In view of the want of data, it is a difficult question to answer. However, the previous reference to the steel mill at Steelton, Pennsylvania, indicated (on a company basis) quite high rates of 40% or more over an eight-year period (Bodnar, 1977, pp. 56 and 58). Also, Brissenden and Frankel (1922, p. 76) referred to a car-building plant with an annual turnover rate of 283% (again on a company basis). Considering that the Point St. Charles rates are job, not company, persistence rates, it would seem that, except for the labourer and labourer-type job classifications, they were, relatively speaking, fairly high, especially in the first eight-year periods after the base years.

The final pertinent question regarding persistence in the Shops is to try to determine whether there was any

significant difference in the tendencies of the separate anglophone and francophone components of the crews to persist in their jobs. This can be done by determining if the proportions of these components among the men who persisted in any job classification were significantly different from the proportions in the original crew in that classification. As, for practical purposes, there were only two ethnic components, the anglophones and the francophones, in most crews, it will be necessary to concentrate on only one of them, the anglophones. Whether a significant difference is found or not for this group, the answer for the other group, the francophones, will follow automatically.

Tables 13 and 14 contain data showing the proportion of anglophones in each job classification in 1880 and 1902 at the beginning of the two study periods, and the proportions of anglophones among the persisting workers at various subsequent times. Taking into consideration the often relatively small numbers of workers in the original populations and among those that could be traced later in the various job classifications, a visual examination of the tables suggests that there was no really significant difference between the proportions of anglophones at the beginning of the periods and later among the subsequent tracees. However, in Table 14 there were five job classifications for which the populations (n) of tracees in January, 1910 were relatively large at 30 or more. For one

of these (M.P. machine men) the difference in proportions of anglophones was nil. For the remaining four classifications (foundry moulders, machinists, Car Department P.C. painters and Car Department carpenters), tests were made for the significance of such differences in proportions that existed using a formula designed for use with large samples (i.e. where n=30 or more) by Freund (1973, pp. 317-320)[1].

As shown in Table 14, none of the four Z-values lay outside the range specified and thus in no case could H_0 be rejected. Thus, in no case was the proportion of anglophones (and therefore, by extension, the proportion of francophones) among the men who persisted significantly different from the proportion in the original 1902 crew, any apparent difference occurring solely due to chance. Thus there was no significant difference between the anglophones and the francophones in their tendencies to persist in their jobs.

Summary

The results of this study of persistence at the Point St. Charles Shops between 1880 and 1917 can be summarized as follows:

(a) The persistence rates in the Car Department from 1880 to 1902 appeared to be somewhat higher than in the period from 1902 to 1917;

(b) The persistence rates in both study periods bore a

fairly strong direct relationship to the skill levels required for the various job classifications;

(c) The persistence rates for the various main job classifications of the whole Shops from 1902 to 1917 appeared to be relatively high compared with those of other industry;

(d) The tendencies to persist in particular job classifications were not significantly different in either the anglophone or the francophone components of the work-force.

Footnotes

$$^{1}Z = \frac{\frac{x_1}{n_1} - \frac{x_2}{n_2}}{\sqrt{p(1-p)\left[\frac{1}{n_1} + \frac{1}{n_2}\right]}}$$

where, $p = \frac{x_1 + x_2}{n_1 + n_2}$

x_1 = Number of anglophones in the whole crew in 1902

x_2 = Number of anglophones in the portion of the 1902 crew that persisted until 1910

n_1 = Number of men in the whole crew in 1902

n_2 = Total number of men from the 1902 crew that persisted until 1910

Significance level = 0.05

Values of Z that would cause H_0 to be rejected = outside the range -1.96 to +1.96

H_0, the null hypothesis, being that there was no significant difference between the proportions of anglophones (or francophones) in the whole crew of any job classification in January, 1902 and in the portion of that crew that persisted until January, 1910, any difference that was found being due solely to chance.

H_1, the alternate and contrary hypothesis, that could be accepted only if H_0 was rejected, being that there was a significant difference between the two proportions of anglophones, the difference being real and caused by the two groups belonging to different populations.

Chapter Six

Places of Residence and the Distance to Work

The Point St. Charles Shops have always been a large employer of labour. In the mid-1880s, the payroll amounted to more than 3,000 men (Reynolds, 1935, p. 118) and it stayed in the 2,000 to 3,000 men range for many years. Many of these men were highly skilled artisans and thus were among the better-paid of the blue collar workers of Montreal. With their families and dependants, the Shops' employees probably amounted to a total of 5,000 to 10,000 or more people or, possibly, 7% to 8% of the total population of the city in 1881. While this proportion decreased considerably as time passed, as Montreal grew very rapidly during the period between 1880 and 1920, it still represented a group of very significant size. Where these people lived was a matter of great importance for the growth of the city and it is a question of considerable interest to geographers, historians and other social scientists. An attempt will be made in this chapter to provide an answer.

Review of the Literature

When the Shops were built in the mid-1850s, Montreal was still a pedestrian city. The first horse-drawn streetcars went into service in 1861 but, as many years passed before the horse railway expanded to its eventual maximum length of

30 miles (48 km) of track (by 1890), and as the horse cars were not operated in the winter months (Binns, 1973. p. 9), the city remained largely a pedestrian town for many years after the 1850's. Thus, as it was usually necessary for workers to walk to and from work, the tendency would have been for most people to live as close as possible to the work place, other things such as rent levels and the quality of the available accommodation being equal.

A number of investigators have considered life in the old pedestrian cities and what was involved. Vance (1960, p. 203), in a somewhat theoretical approach, has suggested that, before the era of mechanical, public transportation that started with the horse railways, the labour shed, or the area from which a factory drew its employees, was about 12 miles (19 km) in diameter. He based this on the estimate that a mounted man could ride about six miles (10 km) in an hour or that he could cover the same distance on foot in an hour and a half. Assuming that the latter assumption is realistic, which seems doubtful, Vance's idea would have resulted, of course, in pedestrian workers needing at least three hours of their time every day to cover the distance from home to their work and back, if they lived six miles (10km) away. During bad winter weather, their walking time would have been correspondingly longer. This seems excessive and unreasonable and thus 12 miles (19 km) for the diameter of a factory's labour shed seems to be too much.

Warner (1976, p. 2), when studying the pedestrian city of Boston of about 1850, decided that the longest practical distance that a worker could walk to reach his place of work, day in and day out, month in and month out, was about two miles (3.2 km). He based this on the fact that the outer limit of the built-up, residential area of 1850 Boston had been about two miles from the city centre.

Zunz (1982, p. 181), in his study of the pedestrian Detroit of around 1900, states, without justifying the statement in any way:

> I consider a distance of one mile [1.6 km] from home to work as walking distance. Distances beyond one mile show a clear separation between residence and work. Conversely, distances shorter than one mile, especially half a mile [0.8 km] or less, indicate a close association between the two, possibly a mill-town effect, with many workers concentrating immediately around a few mills.

Despite the above assertion, Zunz (pp. 182-3) found many examples where the majority of the workers did not live within his stated one mile (1.6 km) of their work and often they did not live even within two miles (3.2 km). Cumbler (1979, p. 41), however, found that, around 1905, most of the shoe workers in Lynn, Massachusetts still walked to work and that 55% of them lived within half a mile (0.8 km) of the shoe factory, 35% lived between half a mile and a mile away and only 10% lived over a mile from the factory.

The introduction of horse-powered streetcars allowed those who could afford to use them to live farther from their work. However, while horses could pull horse cars at six

miles (10 km) per hour for short distances, Pred (1966, p. 56) has found that their average speed was much less. Thus, he has suggested that workers depending on such cars could not travel back and forth to work on a regular basis from much beyond two and a half to four miles (4 to 6.4 km) from the factory.

The next improvement, the general adoption of electric streetcars in the early 1890s, resulted in increasing the effective, practical distance between home and the work place to about six miles (10 km) (Ibid.). In Montreal, the electrification of the street railway system in 1894 had the additional effect of providing good, year-around, public transportation as the decision was made, concurrent with the adoption of electric trams, to clear the snow off the streets in the winter, which had never been done before (Binns, p. 11). Thus, suddenly an effective alternative to having to live within walking distance of the factory appeared. However, another aspect of late 19th century life, the social need to be close enough to one's relations and friends to communicate with them face to face, intervened. The result was that there was little concerted movement away from the vicinity of the work place until the telephone had become an affordable and indispensable addition to most people's homes (Pred, p. 131).

Thus, summarizing and trying to form a consensus among the ideas of the foregoing investigators, it would seem that, in

the pedestrian towns of the late 19th and early 20th centuries, the general pattern was that most people tried to live within walking distance or about two miles (3.2 km) or less of their work places. If good, well-established, year-around, horse-car service was available at a cost within the reach of most workers, they might live as much as four miles (6.4 km) away or, once regular electric streetcar service had been provided, they might live up to about six miles (10 km) from their work.

Another factor that might affect the choice of where to live was any tendency that might exist for people to separate into groups. Such groups could be made up of people of like race, language, religion, occupation or income level. The first three of these characteristics, at least, are very divisive and it would seem that, if a payroll group included people of sharply different backgrounds, characteristics, values and interests, where possible each family from that group would try to settle near its own kind. The result would be a distinctly uneven residential area made up of a number of smaller, more uniform neighbourhoods in which the inhabitants had segregated themselves according to some important criterion or complex sense of identity.

Concerning such segregation, which is probably almost instinctive in human societies, scholars have found it existing in many places. Thus, Thernstrom (1964, p. 30) found occupational segregation in Newburyport, Massachusetts

in 1850 when he observed that there were ". . . many streets where laborers never lived, others where they clustered together in large numbers." In Lynn, Massachusetts, in the late 1800s, there was apparently little racial or ethnic segregation as all newcomers to the boot and shoe factories tended to live together in one area, the Brickyard, regardless of their ethnic backgrounds, whether English, Irish, Greek, Scandinavian, Jewish, or native American. However, another form of segregation, whether occupational, economic or class, did exist as the older, better-established, more affluent people in Lynn lived anywhere but the Brickyard (Cumbler, p. 37).

In a case involving French-Canadians in the textile town of Fall River, also in Massachusetts, after 1875, there was strong ethnic segregation as they all tended to settle in a particular area which was soon dubbed 'Petit Canada'. Here, in addition to their homes, the French gradually built up a network of their own institutions such as the church, a parochial school and such organizations as La Ligue des Patriotes, La Société de Saint-Jean Baptiste, Le Cercle Montcalm and so on (Ibid., p. 120).

Another example of strong ethnic segregation in a totally different industry is afforded by the steel town of Gary, Indiana, around 1910. Here, the company town was reserved, basically, for company officials and skilled tradesmen (who, generally, were native American or of old-immigrant,

English, Irish or German stock). A non-company town for lower-level workers sprang up off the company property and it eventually contained people of 23 different national origins. The majority of these congregated separately in their own particular areas of the town and soon each group began to acquire in its own area the institutions that mattered the most to it, the company often contributing financial help (Greer, 1979, pp. 69-79).

Finally, regarding Montreal itself, Reynolds (p. 117) points out that, in the late 19th century, there was a pattern of strong ethnic segregation:

> The population is divided into three chief divisions: 'English', inhabiting mainly the west-end; . . . 'French', inhabiting principally the east-end [i.e. east of Bleury Street] , but also the lower level of the west-end and 'Irish', inhabiting the region known as 'Griffintown', west of McGill Street

In later years also, in order to be near their work places, other concentrations or enclaves of anglophones sprang up in other parts of Montreal such as Verdun, Rosemount, Hochelaga and Maisonneuve (Ibid., pp. 119-120). Most of these 'colonies' were large enough so that some of their anglophone institutions, such as churches and schools, could and did follow them to minister to their wants and needs.

Thus, faced with the evidence provided by other investigators for both Montreal and other North American communities, it would seem that we should expect to find that the homes of the workers at the Point St. Charles Shops

between 1880 and 1918 were concentrated largely within about a two mile (3.2 km) radius of the Shops and that they were fairly well segregated into neighbourhoods that were basically either anglophone or francophone.

Methodology

As a preliminary, to reduce the work involved, the decision was made to trace the addresses of only a portion of the Shops' workers, concentrating on the ten most important and representative trades but being sure to include representatives of the top, middle and bottom of the wage scales. Thus, the trades investigated were as follows:

Table A

Dept.	Trade	Numbers of Men* Feb., 1880	Jan., 1888	Feb., 1896	Jan., 1902	Jan., 1910	Dec., 1917
M.P.	Blacksmiths				29	25	16
M.P.	Boilermakers				29	30	20
M.P.	Machinists				160	260	197
M.P.	Machine Men						87
Car	Carpenters	164	181	210	263	380	273
M.P.	Blacksmiths' Assistants				79	73	61
M.P.	Boilermakers' Assistants				94	102	82
M.P.	Machinists' Assistants				75	209	**
Car	Labourers	54	114	111	93	118	115
M.P.	Labourers	___	___	___	128	163	**
	Total	218	295	321	950	1360	851
Total Shops' Crew		405[1]	598[1]	683[1]	1842	2525	2544
Proportion of Total Crew Included		53.8%	49.3%	47.0%	51.6%	53.9%	33.5%

[1] For the Car Department only, not the whole Shops as no data were available for the Motive Power (M.P.) Department prior to 1902.

* In every case, the numbers of men shown were the full complement for the particular trade.

** As, by 1917, these crews included such a high proportion of foreign workers who, experience showed, were seldom listed in the city directories, they were not investigated for this month.

As can be seen, except for 1917 the numbers of men investigated amounted generally to about half the total

Shops' work-force at any period.

Having prepared lists of the names of all the men in the above ten trades arranged in alphabetical order, the next step was to look each name up in the alphabetical section of the Lovell's City of Montreal directory for the appropriate year. There were the usual problems in record-matching stemming mainly from the Grand Trunk Railway's practice of showing only one initial or, occasionally, a single Christian name for each hourly-paid man in the payroll ledgers. Very often, the directories, also, showed only a single initial or Christian name and the task was then to decide if the name found in the directory was that of the person sought. Another problem concerned the spelling in the payroll records which was often obviously wrong (e.g. 'Amasse' instead of 'Amesse', 'Doud' instead of 'Dowd' and so on). Spelling errors were sometimes compounded by the fact that most of the payroll records were handwritten with pen and ink. While some were very clear and legible, many were not and thus errors may have occurred in deciphering names. Usually, spelling errors were ignored and directory entries accepted even if the spellings did not agree perfectly.

Matching was done very conservatively. In general, to be acceptable, a directory entry had to show the man's surname, initial or Christian name, address and occupation. Sometimes, otherwise-acceptable entries were found that

showed no occupation or, simply, 'G.T.R. employee'. These were not accepted. Addresses that were apparently too far away for easy walking or commuting to the Shops were usually accepted. Examples of some of these were men found living on Amherst, Panet, Iberville or even Aylwin Streets.

Quite frequently, a name was not present in the directory for the appropriate year but was present in the issue for either the preceding or succeeding year. Such names were usually accepted despite the possible error that was thus introduced.

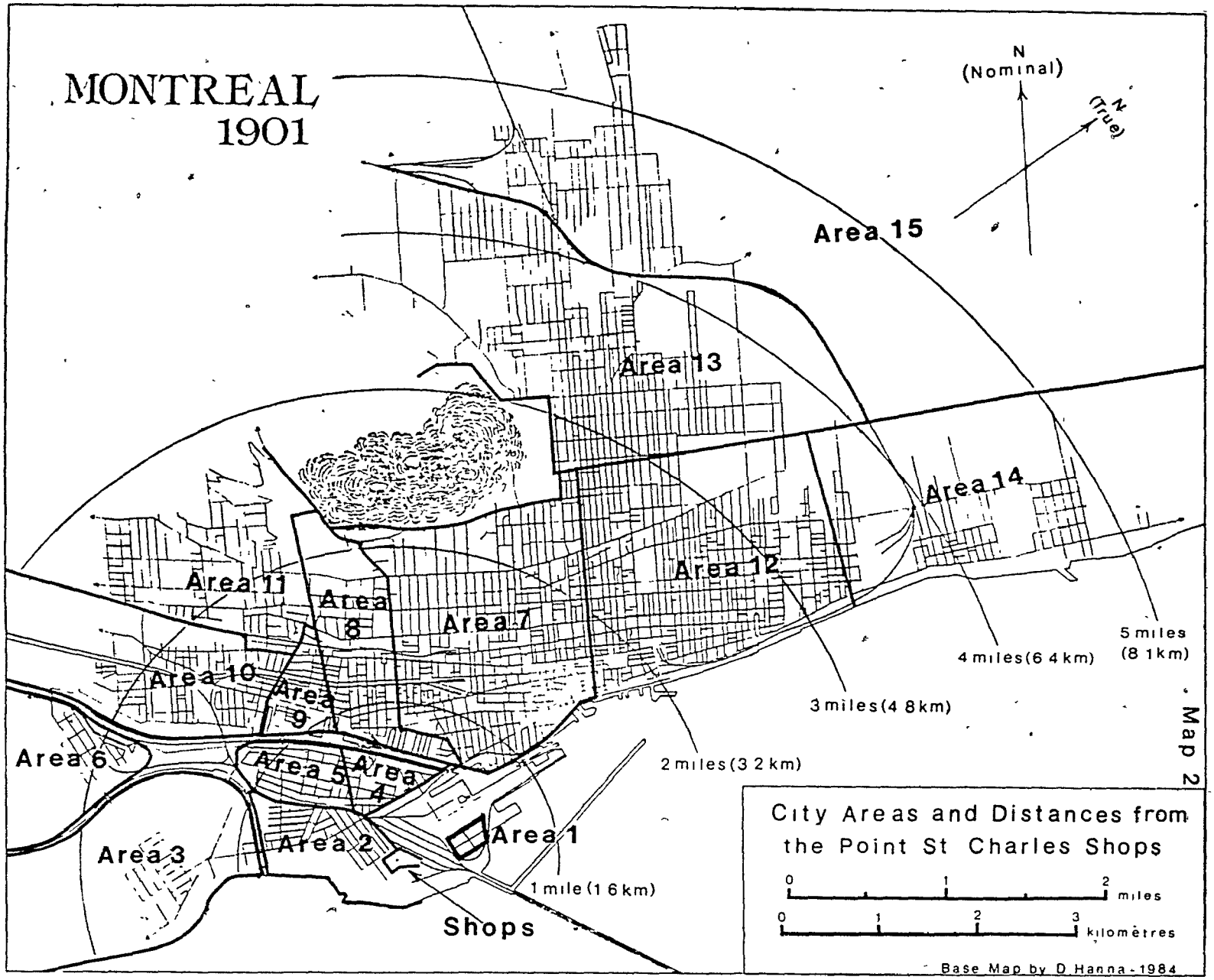
Very often more than one good possibility to match with a desired name was found in the directory. For example, two or even ten 'J. Poiriers', all carpenters, might be found to match with 'J. Poirier', carpenter. In most cases, none of these names was accepted unless one of them was specifically designated 'carpenter G.T.R.'. Even if the choice in the directory was between only two men, one living, say, half a mile (0.8 km) from the Shops and the other five miles (8 km) away, usually neither was accepted.

Frequently, it was difficult to decide if the occupation shown in the directory (which would have been what had been given to the directory's door-to-door canvasser or enumerator by either the man concerned or his wife) was the same as the occupational title in the payroll records. To settle this problem, finally it was decided to accept, for a

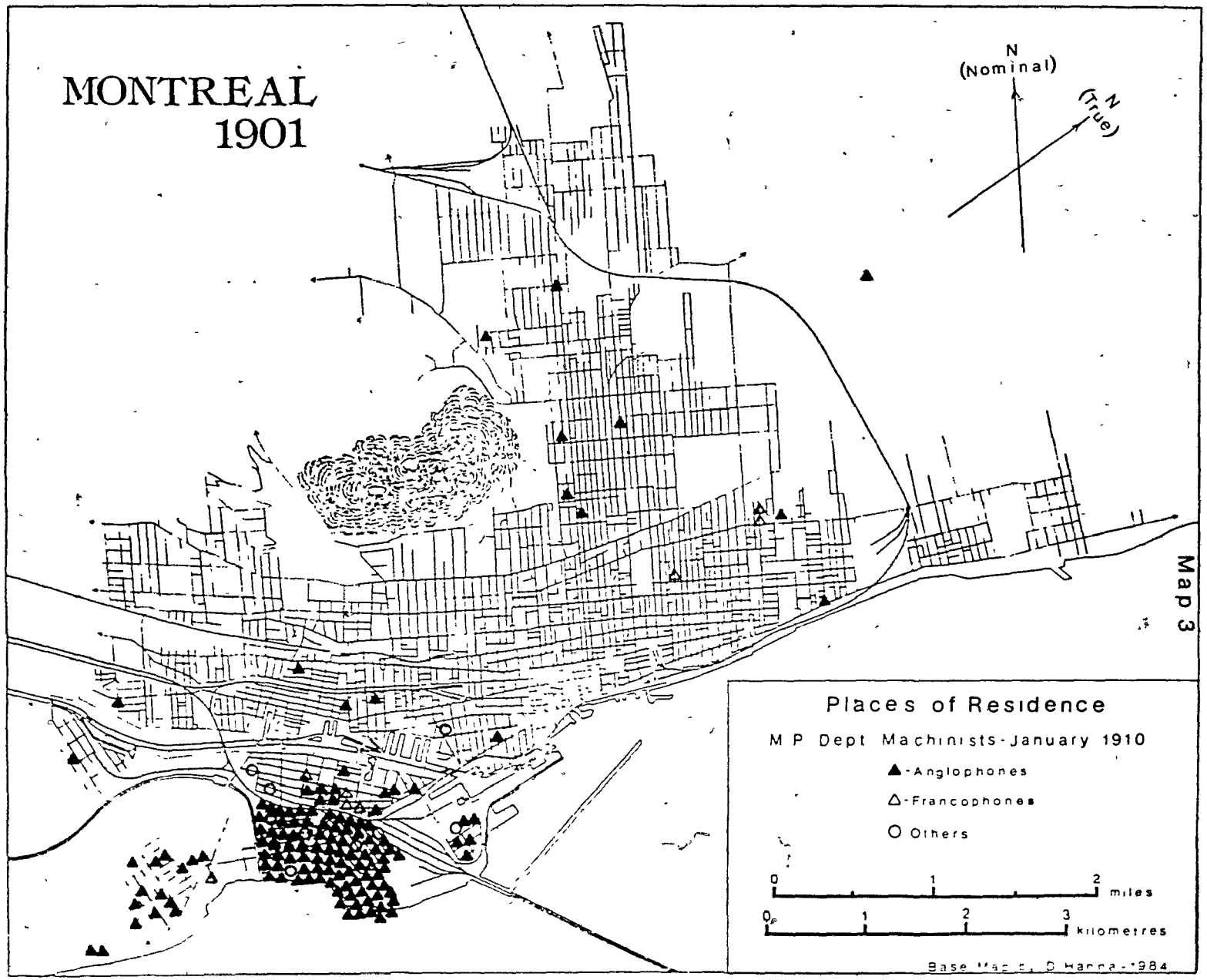
'machinist', directory appellations of 'machinist', 'fitter', 'brass-finisher', 'engineer', 'turner', 'toolmaker', 'locomotive builder', 'millwright', or 'inspector of engines'; for a 'carpenter', titles of 'patternmaker', 'cabinet-maker', 'joiner', 'carpenter', 'finisher', 'saw-filer', or 'car builder' and so on.

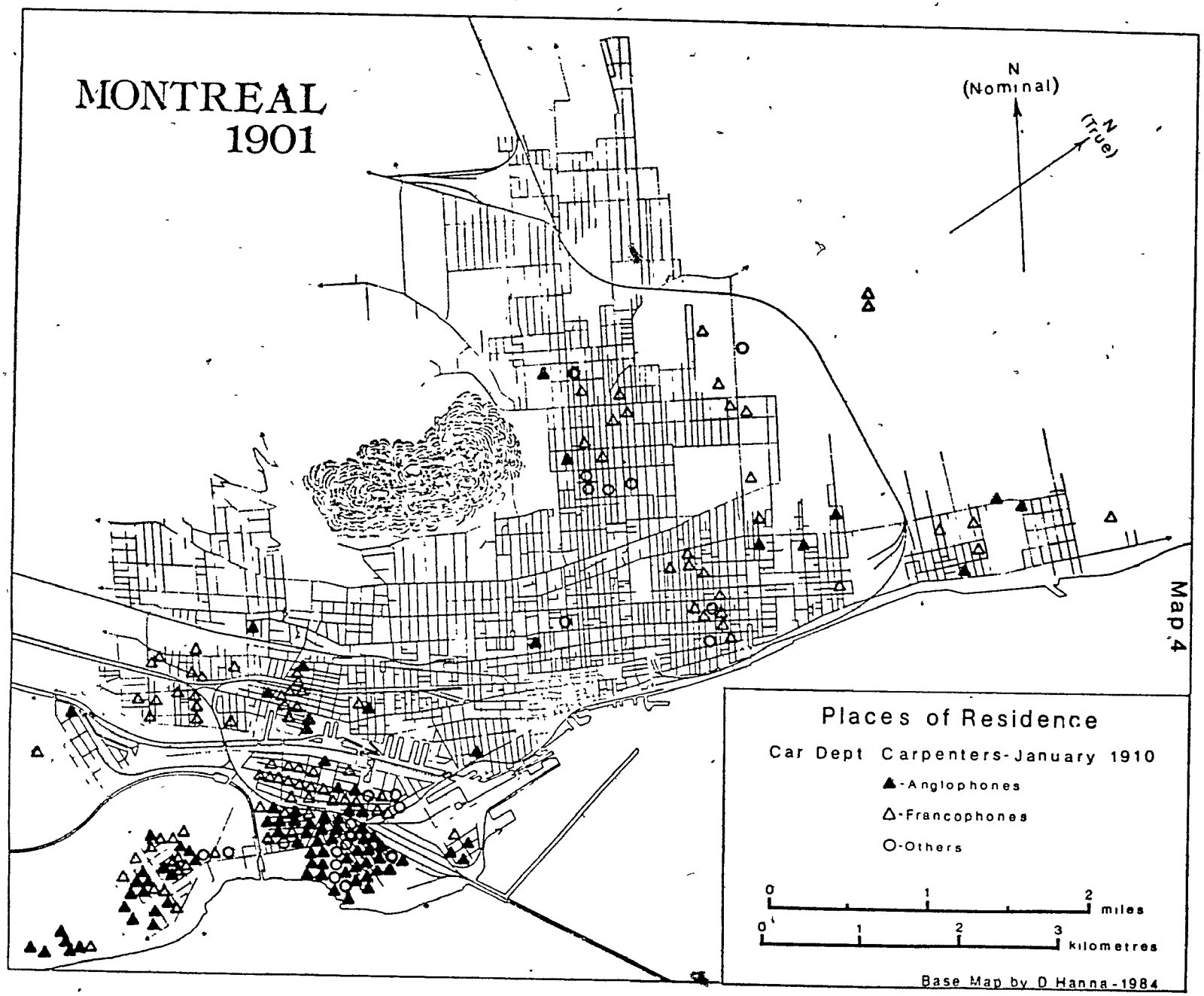
Very few of the tradesmen's assistants described themselves by that title. Some gave as their occupation the occupation of the tradesman for whom they worked (e.g. 'blacksmith' or 'engineer') which was accepted. Others seemed to appear in the directory as 'laborer'. Sometimes it was accepted and sometimes it wasn't depending on the apparent difficulty of sifting out the real laborers from those who were really assistants.

Having completed the check against the directory, the addresses of the men who had been traced in each trade were plotted on maps of Montreal so that the general pattern of the distribution or of concentrations in particular areas could be seen. Typical examples of these maps for the various trades and periods are appended as Maps 3 and 4. In general, the plotting was accurate to within about one city block but, when the density of the plotted symbols on a map became so high that there was no space to insert another symbol in its proper place, it had to be shown more than one block away.


MONTREAL
1901
N
(Nominal)
N
(True)
Area 15
Area 13
Area 14
Area 12
Area 11
Area 8
Area 7
Area 10
Area 9
Area 6
Area 5
Area 4
Area 3
Area 2
Area 1
Shops
1 mile (1 6 km)
2 miles (3 2 km)
3 miles (4 8 km)
4 miles (6 4 km)
5 miles
(8 1 km)
City Areas and Distances from
the Point St Charles Shops
0 1 2 miles
0 1 2 3 kilometres
Base Map by D Hanna - 1984

Map 2


MONTREAL
1901
N
(Nominal)
N
(True)
Map 3
Places of Residence
M P Dept Machinists-January 1910
▲-Anglophones
△-Francophones
O Others
0 1 2 miles
0 1 2 3 kilometres
Base Map: D Hanna-1984


MONTREAL
1901
N
(Nominal)
N
(True)
Map 4
Places of Residence
Car Dept Carpenters-January 1910
▲-Anglophones
△-Francophones
O-Others
0 1 2 miles
0 1 2 3 kilometres
Base Map by D Hanna-1984

To facilitate the analysis of the maps, the city was broken down into a number of geographical areas and marked out in distances from the Shops as shown on Map 2. While the boundaries of these areas were chosen arbitrarily, there was some logic to them, based as most of them were on municipal boundaries (of 1880 or later) or on physical features such as railway tracks or the Lachine Canal or on a desire to separate out a particular area such as the city centre (Area 7 on the map). With this areal breakdown, it was then a simple, if time-consuming, matter to count the number of symbols in each area or within a certain distance of the Shops and to summarize this data in tables so as to be able to arrive at some sort of quantitative analysis of the findings.

Criticism of the Method

City directories are not noted for being the ideal source to use for research purposes. Dawley (1976, p. 142) comments on this and notes that, in the 19th century at least, directories often missed people, especially those at the lower economic levels. This particular failing was borne out by the experience gained in the present study when it was found that very few of the immigrant men with difficult Central or eastern European names, who were working in the Shops in the later part of the study period, could be found in the directories. There are probably many reasons for this and they can't all be laid at the door of the directory's publisher although the commitment and zeal of

his door-to-door enumerators may have had a bearing on the matter. However, other factors, such as frequent layoffs, people living in boarding and rooming houses or continually moving around, their inability to speak English or French or, possibly, even refusing to give information, all probably played their part.

Lacking any other regularly-issued, easily-accessible, public record arranged by surname alphabetically, the city directories were used as the basis for this study despite their short-comings and the uncertainties that were very evident when they were being used. The uncertainties consisted, of course, of the constant question and doubt in one's mind as to whether the right man had been found. Sometimes, without any hesitation, it seemed obvious that the person found in the directory was definitely the man sought. However, at other times and especially for those cases where addresses three to five miles (4.8 to 8 km) away from the Shops were turning up frequently in the later part of the study period, as indicated on Map 4, the doubt was greater whether the right man had been identified. Thus, the closer to the Shops that a man was found to be living, the greater seemed the probability that he was indeed the man sought.

Due to these short-comings and the uncertainties of the method, it is stressed that the results obtained and presented here should not be looked upon as being extremely

precise. It is believed that they give a reasonably accurate idea of the general situation that prevailed, but they do not imply that a high degree of numerical accuracy exists in many of the quantitative results shown. Many of these may be accurate only to about, say, ±5%.

Results of the Study

As the city directory searches were in progress, it soon became obvious that, while, for some trades, the addresses of a fairly high proportion of their workers could be traced, for others, it was disappointingly small. This may be a problem of bias in directory listings, particularly after 1902, or it may be merely a reflection of the relative residential stability or instability of the men in the skilled and unskilled trades, as has already been suggested. The final situation for all ten of the trades studied was as follows:

Table B

Dept.	Trade	Numbers of Men Traced Feb., 1880	Jan., 1888	Feb., 1896	Jan., 1902	Jan., 1910	Dec., 1917
M.P.	Blacksmiths				18	19	13
	Proportion of full crew				62%	76%	81%
M.P.	Boilermakers				14	17	12
	Proportion of full crew				48%	57%	60%
M.P.	Machinists				100	149	111
	Proportion of full crew				63%	57%	56%
M.P.	Machine Men						28
	Proportion of full crew						32%
Car	Carpenters	108	112	135	177	209	116
	Proportion of full crew	66%	62%	64%	67%	55%	42%
M.P.	Blacksmiths' Assistants				17	22	13
	Proportion of full crew				22%	30%	21%
M.P.	Boilermakers' Assistants				20	40	9
	Proportion of full crew				21%	39%	11%
M.P.	Machinists' Assistants				26	66	
	Proportion of full crew				35%	32%	
Car	Labourers	17	46	54	46	38	20
	Proportion of full crew	31%	40%	49%	49%	32%	17%
M.P.	Labourers				51	18	
	Proportion of full crew				40%	11%	
Total men traced		125	158	189	469	578	322
Total full crews for the trades shown		218	295	321	950	1360	851
Proportion traced		57%	54%	59%	49%	43%	38%
Overall total Shops' crew		405[1]	598[1]	683[1]	1842	2525	2544
Proportion traced		31%[1]	26%[1]	28%[1]	25%	23%	13%

[1] For the Car Department only, not the whole Shops.

Thus, the proportion of men who could be traced at different

periods varied from 81% down to 11% of the individual full crews for the different trades but, considering the ten trades as a whole, between 49% and 38% were traceable for the combined Shops between 1902 and 1917. For the Car Department, only, between 1880 and 1896, the proportion traceable varied from 59% to 54%.

With the numbers of men traced amounting, usually, to about 25% of the overall total Shops' crews as shown, the question arises whether the ten trades studied could be considered to be, in effect, a formal sample of the overall total crews. With this in mind, the ethnic breakdown of the total men traced was compared with the actual ethnic composition of the overall total crews as shown in Table C below:

Table C

	1880	1888	1896	1902	1910	1917
Total men traced	125	158	189	469	578	322
Ethnic breakdown:						
anglophone	61% (60%)	55% (54%)	57% (53%)	62% (57%)	66% (58%)	56% (44%)
francophone	37% (31%)	41% (37%)	37% (41%)	34% (37%)	26% (26%)	36% (30%)
Other (Including Uncertain)	2% (9%)	4% (9%)	6% (6%)	4% (6%)	8% (16%)	8% (26%)

The bracketted figures show the actual ethnic compositions of the overall total Shops' crews in the particular periods.

While, in a number of cases, the breakdowns of the men traced are remarkably close to the overall ethnic compositions, in general it is evident that the particular

groups of men whose addresses could be traced contained higher percentages of both anglophones and francophones (especially the former) and lower percentages of Others than actually existed in the overall crews. Also, it will be noted from Table B that, in general, the proportions of the men who were traceable were significantly lower for the lower-echelon employees (the tradesmen's assistants and the labourers) than they were for the skilled tradesmen. Thus, for these reasons, at least, it is not considered that the groups of total men traced could be looked upon as being good, randomly- selected and completely unbiased samples of the overall total Shops' crews. Nevertheless, it is considered that they should give a good indication of the residential patterns that applied for the men of the ten trades actually investigated and that they should give also a fairly good indication of the patterns that most likely applied for the portions of the overall crews that were not investigated.

Discussion

The results obtained in this study have been summarized in Tables 15 to 19. The most obvious and immediate fact that is evident on studying these results and the numerous maps from which the tables were made (but which, mostly, are not included here), is that Area 2, about two thirds of which lay within half a mile (0.8 km) and the whole of which lay within one mile (1.6 km) of the Shops (as shown on Map 2), usually contained the largest proportion of the Shops'

RESIDENTIAL PATTERNS - WHOLE SHOPS - JANUARY, 1902 TABLE 15

Area No. or Distance from Shops	Numbers of Men Whose Addresses Could be Traced																															
	Black-smiths			Boiler-makers			Machinists			M.P. Machine Men			Car Dept. Carpenters			B'smths' Ass'ts			B'mkrs' Ass'ts.			Mach. Ass'ts.			M.P. Labourers			Car Labourers			Total		Anglo's		Franco's	
	T	A	F	T	A	F	T	A	F	T	A	F	T	A	F	T	A	F	T	A	F	T	A	F	T	A	F	T	A	F	T	%	T	%	T	%
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37
Area of the City																																				
Area No. 1				1			2	2					5	2	3																8	2	4	1	3	2
Area No. 2	12	12		10	10		71	61	2				48	35	9	5	5		11	11		12	12		15	15		18	16	1	202	43	177	61	12	7
Area No. 3							3	3					17	6	11				2	2											22	5	11	4	11	7
Area No. 4	3	3		2	2		7	6					14	8	6	2	1	1	2	2		3	3		1	1		8	4	4	42	9	30	10	11	7
Area No. 5				1	1		5	4	1				24	4	20	2	1	1	3	1	2	3	1	2	10	6	3	6	1	5	54	12	19	7	34	21
Area No 6																						1	1		1	1		1	1		3	1	3	1		
Area No. 7	1	1					2	2					6	5	1				1	1		2	2		3	2		1	1		16	3	14	5	1	1
Area No. 8							2	1	1				9	5	4				1	1					3	1	2	1		1	16	3	8	2	8	5
Area No. 9							1	1					9		9										2	1	1	1		1	13	3	2	1	11	7
Area No. 10							3	1	2				15		14	3		3				1	1		5	1	4	3		3	30	6	3	1	26	16
Area No. 11																															-		-		-	
Area No. 12	2		2				3	1	2				14	3	11	3		3				3	3		7	3	4	2		2	34	7	10	3	24	15
Area No. 13							1	1					12	1	11	2		2				1	1		2	1		2	1	1	20	4	5	2	14	9
Area No 14													3		3										2	2		3	1	2	8	2	3	1	5	3
Area No. 15													1		1																1				1	1
Total	18	16	2	14	13		100	83	8				177	69	103	17	7	10	20	18	2	26	24	2	51	34	14	46	25	20	469	100	289	99	161	101

(continued)

TABLE 15 (continued)

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37
Distance from the Shops																																				
Up to 1 mi.	16	16		14	13		86	74	3				92	50	38	9	7	2	16	14	2	18	16	2	28	23	3	33	22	10	312	67	235	81	60	37
1 to 2 mi.							10	7	3				55	15	39	3		3	3	3		2	2		13	4	9	5		5	91	19	31	11	59	37
2 to 3 mi.							2		2				16	4	12	3		3	1	1		6	6		4	3	1	3	2	1	35	7	16	6	19	12
3 to 4 mi.	2		2				2	2					11		11	2		2							6	4	1	4		4	27	6	6	2	20	12
4 to 5 mi.													3		3													1	1		4	1	1		3	2
Over 5 mi																																				
Total	18	16	2	14	13		100	83	8				177	69	103	17	7	10	20	18	2	26	24	2	51	34	14	46	25	20	469	100	289	100	161	100

T = Total

A = Anglophones (='Anglo's')

F = Francophones ('Franco's')

Note: Wherever the sum of 'A' and 'F' does not equal 'T', the difference represents the Uncertain and/or Others categories. As these were usually small and were not the main focus of attention, they were ignored.

RESIDENTIAL PATTERNS - WHOLE SHOPS - JANUARY, 1910 TABLE 16

Area No. or Distance from Shops	Numbers of Men Whose Addresses Could be Traced																																	
	Black-smiths			Boiler-makers			Machinists			M.P. Machine Men			Car Dept. Carpenters			B'smths' Ass'ts.			B'mkrs' Ass'ts.			Mach Ass'ts.			M.P. Labourers			Car Labourers			Total		Anglo's		Franco's	
	T	A	F	T	A	F	T	A	F	T	A	F	T	A	F	T	A	F	T	A	F	T	A	F	T	A	F	T	A	F	T	%	T	%	T	%
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37
Area of the City																																				
Area No. 1							6	5					4	3	1							2	2								12	2	10	3	1	1
Area No. 2	14	14		10	9		90	84	1				54	40	5	7	7		14	14		33	29	2	2	2		6	6		230	40	205	54	8	5
Area no. 3	2	1	1	2	1	1	16	15	1				39	22	15	3	1	2	2		2							4	4		68	12	44	12	22	15
Area No. 4	1	1		2	2		6	5	1				11	3	5	3	3		3	2	1	7	7		2	2		3	2	1	38	7	27	7	8	5
Area No. 5				1	1		10	5	3				17	2	15	2		2	6	4	2	4	4		1		1	7	2	5	48	8	18	5	28	19
Area No. 6							1	1					2	1	1	1		1	1	1					1		1	1		1	7	1	3	1	4	3
Area No. 7							3	2					3	2		1	1		1	1		4	3		6	3		5	5		24	4	18	5	-	-
Area No. 8							2	2					2	1	1	1	1		1	1		1	1					2		1	9	2	6	2	2	1
Area No. 9							1	1					11	3	8							1		1				2	1		15	3	5	1	9	6
Area No. 10							1	1					15	1	14	1		1	3	1	1	1	1								21	4	4	1	16	11
Area No 11													1	1																	1		1		-	-
Area No 12	1		1	1	1		6	3	3				19	2	12	1		1	3	1	2	7	5	1	2			2	1		42	7	13	3	20	13
Area No. 13	1	1					4	4					15	2	10	1		1	1	1		3	2	1	2		1	2	1	1	29	5	11	3	14	9
Area No. 14							1		1				11	4	7				5	1	4	2	2		1	1		3	1	2	23	4	9	2	14	9
Area No. 15							2	2					5	1	3	1	1					1			1			1	1		11	2	5	1	3	2
Total	19	17	2	17	15	1	149	130	10				209	88	97	22	14	8	40	27	12	66	56	5	18	8	3	38	24	11	578	101	379	100	149	99

(continued)

TABLE 16 (continued)

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37
Distance from the Shops																																				
Up to 1 mi.	15	15		13	12		112	99	5				86	49	25	11	10	1	23	20	3	46	42	2	6	5	1	14	10	4	326	56	262	69	41	28
1 to 2 mi.	2	1	1	2	1	1	21	19	1				69	27	39	7	3	4	7	3	3	6	4	1	5	1		15	10	3	134	23	69	18	53	36
2 to 3 mi.				2	2		6	5	1				23	4	13	1		1	2	2		6	4	1	4	1	1	2		1	46	8	18	5	18	12
3 to 4 mi	2	1	1				7	5	2				17	4	11	2		2	5	1	4	5	4	1	1		1	4	3	1	43	7	18	5	23	15
4 to 5 mi.							2						11	4	6	1	1		3	1	2	3	2		1			2	1	1	23	4	11	3	9	6
Over 5 mi							1		1				3		3										1	1		1		1	6	1	1		5	3
Total	19	17	2	17	15	1	149	130	10				209	88	97	22	14	8	40	27	12	66	56	5	18	8	3	38	24	11	578	99	379	100	149	100

T = Total

A = Anglophones (='Anglo's')

F = Francophones (='Franco's')

Note: Wherever the sum of 'A' and 'F' does not equal 'T', the difference represents the Uncertain and/or Others categories. As these were usually small and were not the main focus of attention, they were ignored.

RESIDENTIAL PATTERNS - WHOLE SHOPS - DECEMBER, 1917 TABLE 17

Area No. or Distance from Shops	Numbers of Men Whose Addresses Could be Traced																																	
	Black-smiths			Boiler-makers			Machinists			M P. Machine Men			Car Dept. Carpenters			B'smths' Ass'ts.			B'mkrs' Ass'ts.			Mach. Ass'ts			M.P. Labourers			Car Labourers			Total		Anglo's		Franco's	
	T	A	F	T	A	F	T	A	F	T	A	F	T	A	F	T	A	F	T	A	F	T	A	F	T	A	F	T	A	F	T	%	T	%	T	%
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37
Area of the City																																				
Area No. 1							1	1																							1		1	1		
Area No. 2	10	10		7	6		54	52	2	13	11	1	22	15	7	3	3		1	1								3	3		113	35	101	56	6	5
Area No 3	2	1	1	3	1	2	17	11	5	5	5		27	10	16	3	2	1	1	1								2	2		60	19	33	18	25	22
Area No. 4				1	1		6	3	1	2	1		7	1	6	2	2		1	1								3	1	1	22	7	10	6	8	7
Area No. 5							5	2	2	1	1		4	1	3	2		2	1		1							1		1	14	4	4	2	9	8
Area No. 6							2		2	1	1		4	2	1																7	2	3	2	3	3
Area No. 7							1	1		1	1		3	1	2																5	2	3	2	2	2
Area No. 8							2	2		1	1		1	1																	4	1	4	2	-	-
Area No 9													1	1		1		1										1		1	3	1	1	1	2	2
Area No. 10							5	4					7		5				2		2							1		1	15	5	4	2	8	7
Area No 11							1	1																							1	-	1	1	-	-
Area No 12	1		1				7	2	4	2		1	12		10	1		1	2		2							3	1	2	28	9	3	2	21	18
Area No 13							3	3		1	1		7		4	1		1										1		1	13	4	4	2	6	5
Area no. 14				1		1	1	1		1	1		11	1	10				1	1								2		2	17	5	4	2	13	11
Area No. 15							6	3	3				10	2	6													3		3	19	6	5	3	12	10
Total	13	11	2	12	8	3	111	86	19	28	23	2	116	35	66	13	7	6	9	4	5							20	7	12	322	100	181	102	115	100

(continued)

TABLE 17 (continued)

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37
Distance from the Shops																																				
Up to 1 mi.	10	10		8	7		65	58	5	16	13	1	33	17	12	7	6	1	3	2	1							7	4	2	149	46	117	65	22	19
1 to 2 mi	2	1	1	3	1	2	24	16	5	7	7		38	13	23	4	1	3	4	1	3							5	2	3	87	27	42	23	40	35
2 to 3 mi.							9	4	5	3	1	1	13	2	6	1		1	1		1							2		2	29	9	7	4	16	14
3 to 4 mi.	1		1				6	4	1	1	1		13		11	1		1										2	1	1	24	7	6	3	15	13
4 to 5 mi				1		1	5	2	3	1	1		16	3	11													4		4	27	8	6	3	19	17
Over 5 mi							2	2					3		3				1	1											6	2	3	2	3	3
Total	13	11	2	12	8	3	111	86	19	28	23	2	116	35	66	13	7	6	9	4	5							20	7	12	322	99	181	100	115	101

T = Total

A = Anglophones (='Anglo's')

B = Francophones (='Franco's')

Note: Wherever the sum of 'A' and 'B' does not equal 'T', the difference represents the Uncertain and/or Others categories. As these were usually small and were not the main focus of attention, they were ignored.

RESIDENTIAL PATTERNS FOR THE CAR DEPARTMENT FROM 1880 to 1896

TABLE 18

Numbers of Men Whose Addresses Could be Traced

Area No or Distance from Shops	February, 1880												January, 1888												February, 1896											
	Car Dept Carpenters			Car Dept. Labourers			Totals						Car Dept. Carpenters			Car Dept Labourers			Totals						Car Dept. Carpenters			Car Dept Labourers			Totals					
							Total		Anglo's		Franco's								Total		Anglo's		Franco's								Total		Anglo's		Franco's	
	T	A	F	T	A	F	T	%	T	%	T	%	T	A	F	T	A	F	T	%	T	%	T	%	T	A	F	T	A	F	T	%	T	%	T	%
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37
Area of the City																																				
Area No 1	13	12		3	3		16	13	15	20	-		12	12		1	1		13	8	13	15			7	5	2	4	4		11	6	9	8	2	3
Area No 2	20	15	4	4	4		24	19	19	25	4	9	18	14	1	16	14	1	34	22	28	32	2	3	42	30	7	26	24		68	36	54	50	7	10
Area No 3	-			-			-		-		-		-			-			-		-		-		2		1				2	1	-		1	1
Area No 4	20	14	6	4	4		24	19	18	24	6	13	10	8	2	10	9		20	13	17	20	2	3	14	11	2	8	6		22	12	17	16	2	3
Area No 5	6	1	5	3	2	1	9	7	3	4	6	13	21	8	12	4	1	3	25	16	9	10	15	23	21	5	16	3	1	2	24	13	6	6	18	26
Area No 6																																				
Area No. 7	9	6	2	2	1	1	11	9	7	9	3	7	3	3		3	3		6	4	6	7			7	5	2	7	7		14	7	12	11	2	3
Area No 8	20	8	12				20	16	8	11	12	26	17	8	9	2	1	1	19	12	9	10	10	16	8	1	7				8	4	1	1	7	10
Area No. 9	5	1	4				5	4	1	1	4	9	10		10	2		2	12	8			12	19	8	1	7				8	4	1	1	7	10
Area No 10	6	2	4	1	1		7	6	3	4	4	9	9	1	8	2	1	1	11	7	2	2	9	14	15	2	12	1	1		16	8	3	3	12	17
Area No 11																									1	1					1	1	1	1		
Area No 12	9	2	7				9	7	2	3	7	15	9	2	7	5	1	4	14	9	3	3	11	17	5		5	5	2	3	10	5	2	2	8	11
Area No 13													2		1				2	1			1	2	3	1	2				3	2	1	1	2	3
Area No 14													1		1	1		1	2	1			2	3	2		2				2	1			2	3
Area No 15																																				
Total	108	61	44	17	15	2	125	100	76	101	46	101	112	56	51	46	31	13	158	101	87	99	64	100	135	62	65	54	45	5	189	100	107	100	70	100

(Continued)

TABLE 18 (continued)

	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37
Distance from the Shops																																				
Up to 1 mi.	66	44	20	15	14	1	81	65	58	76	21	46	62	44	14	30	26	2	92	58	70	80	16	25	83	51	26	43	38	1	126	67	89	83	27	39
1 to 2 mi.	34	16	17	2	1	1	36	29	17	22	18	39	39	10	29	10	4	6	49	31	14	16	35	55	41	9	30	6	5	1	47	25	14	13	31	44
2 to 3 mi.	8	1	7				8	6	1	1	7	15	8	2	5	5	1	4	13	8	3	3	9	14	6	1	5	4	1	3	10	5	2	2	8	11
3 to 4 mi.													3		3	1		1	4	3			4	6	4	1	3	1	1		5	3	2	2	3	4
4 to 5 mi																									1		1				1	1			1	1
Over 5 mi.																																				
Total	108	61	44	17	15	2	125	100	76	99	46	100	112	56	51	46	31	13	158	100	87	99	64	100	135	62	65	54	45	5	189	101	107	100	70	99

T = Total

A = Anglophones (='Anglo's')

F = Francophones (='Franco's')

Note. Wherever the sum of 'A' and 'F' does not equal 'T', the difference represents the Uncertain and Others categories. As these were usually small and were not the main focus of attention, they were ignored.

RESIDENTIAL PATTERNS FOR THE CAR DEPARTMENT FROM 1902 to 1917

TABLE 19

Numbers of Men Whose Addresses Could be Traced

Area No or Distance from Shops	January, 1902												January, 1910												December, 1917											
	Car Dept. Carpenters			Car Dept Labourers			Totals						Car Dept. Carpenters			Car Dept. Labourers			Totals						Car Dept. Carpenters			Car Dept. Labourers			Totals					
							Total		Anglo's		Franco's								Total		Anglo's		Franco's								Total		Anglo's		Franco's	
	T	A	F	T	A	F	T	%	T	%	T	%	T	A	F	T	A	F	T	%	T	%	T	%	T	A	F	T	A	F	T	%	T	%	T	%
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37
Area of the City																																				
Area No 1	5	2	3				5	2	2	2	3	2	4	3	1				4	2	3	3	1	1												
Area No 2	48	35	9	18	16	1	66	30	51	54	10	8	54	40	5	6	6		60	24	46	41	5	5	22	15	3	3	3		25	18	18	43	3	4
Area No 3	17	6	11				17	8	6	6	11	9	39	22	15	4	4		43	17	26	23	15	14	27	10	16	2	2		29	21	12	29	16	21
Area No 4	14	8	6	8	4	4	22	10	12	13	10	8	11	3	5	3	2	1	14	6	5	4	6	6	7	1	6	3	1	1	10	7	2	5	7	9
Area No 5	24	4	20	6	1	5	30	13	5	5	25	20	17	2	15	7	2	5	24	10	4	4	20	19	4	1	3	1		1	5	4	1	2	4	5
Area No 6				1	1		1		1	1			2	1	1	1		1	3	1	1	1	2	2	4	2	1				4	3	2	5	1	1
Area No 7	6	5	1	1	1		7	3	6	6	1	1	3	2		5	5		8	3	7	6			3	1	2				3	2	1	2	2	3
Area No 8	9	5	4	1		1	10	4	5	5	5	4	2	1	1	2		1	4	2	1	1	2	2	1	1					1	1	1	2		
Area No 9	9		9	1		1	10	4			10	8	11	3	8	2	1		13	5	4	4	8	7	1	1		1		1	2	1	1	2	1	1
Area No 10	15		14	3		3	18	8			17	14	15	1	14				15	6	1	1	14	13	7		5	1		1	8	6			6	8
Area No 11													1	1					1		1	1														
Area No 12	14	3	11	2		2	16	7	3	3	13	11	19	2	12	2	1		21	9	3	3	12	11	12		10	3	1	2	15	11	1	2	12	15
Area No 13	12	1	11	2	1	1	14	6	2	2	12	10	15	2	10	2	1	1	17	7	3	3	11	10	7		4	1		1	8	6			5	6
Area No 14	3		3	3	1	2	6	3	1	1	5	4	11	4	7	3	1	2	14	6	5	4	9	8	11	1	10	2		2	13	10	1	2	12	15
Area No 15	1		1				1				1	1	5	1	3	1	1		6	2	2	2	3	3	10	2	6	3		3	13	10	2	5	9	12
Total	177	69	103	46	25	20	223	98	94	98	123	100	209	88	97	38	24	11	247	100	112	101	108	101	116	35	66	20	7	12	136	100	42	99	78	100

(Continued)

TABLE 19 (continued)

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37
Distance from the Shops																																				
Up to 1 mi	92	50	38	33	22	10	125	56	72	77	48	39	86	49	25	14	10	4	100	40	59	53	29	27	33	17	12	7	4	2	40	29	21	50	14	18
1 to 2 mi	55	15	39	5		5	60	27	15	16	44	36	69	27	39	15	10	3	84	34	37	33	42	39	38	13	23	5	2	3	43	32	15	36	26	33
2 to 3 mi	16	4	12	3	2	1	19	9	6	6	13	11	23	4	13	2		1	25	10	4	4	14	13	13	2	6	2		2	15	11	2	4	8	10
3 to 4 mi	11		11	4		4	15	7			15	12	17	4	11	4	3	1	21	9	7	6	12	11	13		11	2	1	1	15	11	1	2	12	15
4 to 5 mi.	3		3	1	1		4	2	1	1	3	2	11	4	6	2	1	1	13	5	5	4	7	6	16	3	11	4		4	20	15	3	7	15	19
Over 5 mi.													3		3	1		1	4	2			4	4	3		3				3	2			3	4
Total	177	69	103	46	25	20	223	101	94	100	123	100	209	88	97	38	24	11	247	100	112	100	108	100	116	35	66	20	7	12	136	100	42	99	78	99

T = Total

A = Anglophones (='Anglo's')

F = Francophones (='Franco's')

Note Wherever the sum of 'A' and 'F' does not equal 'T', the difference represents the Uncertain and Others categories. As these were usually small and were not the main focus of attention, they were ignored.

employees. Also, throughout the period from 1880 to 1917, this area was primarily an anglophone area with relatively few of the Shops' francophones in it. This can be seen from a glance at Maps 3 and 4 and is also evident from Tables 15 to 17 which show that, for the particular months in 1902, 1910 and 1917, Area 2 contained 43%, 40% and 35%, respectively, of all the men studied. While not shown in the tables, the proportions of these Shops' men in Area 2 who were anglophones were 88%, 89% and 89% while the francophones ran at only 6%, 3% and 5%, respectively, (the balances being accounted for by the Others and Uncertain categories). In addition, as the tables show, the proportions of the total anglophones in the ten trades studied represented by the anglophones in Area 2 were 61%, 54% and 56% whereas the similar proportions of the total francophones were 7%, 5% and 5%, respectively in each case.

The situation as sketched above applied for the whole Shops in which, due to the numbers involved, the metal-working operations of the Motive Power Department were the dominant factor. However, the same situation existed in the Car Department, alone, where wood-working operations were dominant. This department's two main trades, the carpenters and labourers, have been extracted from Tables 15 to 17 and shown separately in Tables 18 and 19. From these, it will be seen that, while the tendencies were considerably less pronounced, in general right through from 1880 to 1917, Area 2 was usually the home of the largest proportion of the

department's employees which was, as before, predominantly anglophone, with only small numbers of francophones included.

If the make-up of the total group living in Area 2 is studied in Tables 15 to 17, it is seen that the skilled metal-workers (blacksmiths, boilermakers and machinists) accounted for close to 50% of the total in both 1902 and 1910 and about 63% by 1917. Carpenters made up from 19% to 24% of the group during the period, with the less-skilled tradesmen's assistants and the unskilled labourers accounting for the balance.

Thus, in summary regarding Area 2, it can be stated that the largest single proportion of the Shops' employees lived in this area, a very high percentage were anglophones, and, while skilled metal workers made up about half the group, carpenters and lower-echelon workers were also well represented.

The development of Area 3 (the Town of Verdun) did not begin until late in the 1890s. Even in 1902 (Table 15), only about 5% of the Shops' workers lived there. However, as Maps 3 and 4 indicate, this began to change rapidly and, by 1910, this proportion had risen to 12% and to 19% by 1917. As Tables 15 to 17 show, the relative numbers of francophones and anglophones were much more equal in Verdun than in Area 2, the Shops' employees living there by 1917 being about 55%

anglophone and 40% francophone. In these early years of the 20th century, there was little, if any, apparent pattern to the distribution of these two ethnic groups within Verdun, both being fairly evenly distributed throughout the developed area.

In Area 2, the skilled metal-working tradesmen greatly outnumbered the carpenters in each of the three years studied. This situation was reversed in Area 3 as, in each of 1902, 1910 and 1917, the Shops' carpenters living there outnumbered the skilled metal workers.

Area 1 was partly within half a mile (0.8 km) of the Shops and partly just over half a mile away and thus, presumably, should have been a very convenient place for Shops' men to live. In the years 1880, 1888 and 1896, between 6% and 13% of the Car Department personnel lived there (Tables 18 and 19), but the numbers of Shops' workers dwindled in later years to the point that, by 1917, only one of the men traced was still there. Aside from 1902 when 38% of the men living in this area were francophones (Table 15), it was always strongly anglophone with very few, or at times no, francophones from the Shops living there.

From 1880 to 1896 (Tables 18 and 19) appreciable numbers of carpenters lived in the area but, unfortunately, nothing can be said about metal workers as no data for the Motive Power Department are available for this period. For 1902 and 1910,

the make-up was variable with carpenters being in the majority in 1902 and metal-working tradesmen in 1910. It is not known why this area was not more popular with the Shops' crew in later years, considering its apparent advantages.

Areas 4 and 5, as shown by Map 2, are bounded by the Grand Trunk Railway's tracks on one side and the Lachine Canal on the other. The two areas are separated by the Montreal city boundary line of 1880 and thus No. 4 had been part of Montreal for many years before 1880, while No. 5 represents the northern half of the former Village of Saint-Gabriel (which was absorbed by Montreal in 1887). Between them, these two areas housed 25% to 29% of the traceable Car Department personnel from 1880 to 1896 (Tables 18 and 19) but, for the Shops as a whole for 1902, 1910 and 1917, they were less important as the proportions of the total men traced who lived there decreased steadily to 21% to 15% to 11%, respectively. These two areas were always mixed ethnically, No.4 running at 71%, 71% and 45% anglophone and 26%, 21% and 36% francophone between 1902 and 1917. In Area 5, however, the situation was reversed as it was 63%, 58% and 64% francophone and 35%, 38% and 29% anglophone in 1902, 1910 and 1917, respectively. Thus, Area 4 was primarily anglophone and No. 5 was primarily francophone which is of interest as it is the first case encountered in this study in which, as far as the Shops' employees were concerned, the francophones predominated in an area.

Concerning the occupational make-up of the groups of Shops' employees living in the two areas, in Area 4 in 1902, 1910 and 1917 the lower echelon employees were generally the most numerous, accounting for from 36% to 47% of the total, with the carpenters and skilled metal workers splitting the balance more or less equally. In Area 5, much the same sorts of splits were in evidence except that, in two of three study months, the carpenters outnumbered the skilled metal-working tradesmen significantly. This was not surprising considering the francophone domination of this area and the paucity of francophones among the metal workers.

It is of interest to wonder why Areas 4 and 5, which were much the same distance from the Shops, should be so different, with the former being predominately anglophone and the latter predominately francophone. The reason is probably connected with their histories, No. 4 having been part of Montreal for many years and No. 5 part of the Village of Saint-Gabriel. The latter was an established francophone community that had had its own church (Roman Catholic) since 1873. Thus it had its core of francophone residents and it would have been natural for French-speaking men from the Shops, who were looking for a place to live, to choose that area in preference to the other.

If now, the numbers of the traceable Shops' workers living in Areas 1 to 5 are totalled for each year, the following

situation is found:

Table D

	1880[1]	1888[1]	1896[1]	1902	1910	1917
Proportion of the total workers traced living in Areas 1 to 5	58%	58%	67%	70%	69%	65%
Proportion of the total anglophones traced living in Areas 1 to 5	72%	77%	80%	83%	80%	82%
Proportion of the total francophones traced living in Areas 1 to 5	35%	30%	43%	44%	45%	42%

[1] Car Department only

Thus, these five areas, which contained all the residential areas of Montreal south of the Lachine Canal (except for the Village of Cote St. Paul which can be ignored), provided the living space for 58% to 70% of the total Shops' workers traced, including 72% to 83% of all the anglophones but only 30% to 45% of all the francophones. Furthermore, considering the skilled metal-working tradesmen (blacksmiths, boilermakers and machinists), in particular, for the years 1902, 1910 and 1917, Tables 15 to 17 indicate that 89%, 86% and 78% of them, including 93%, 88% and 84% of all their anglophones but only 30%, 62% and 54%, respectively, of their francophones, lived in these areas. Thus, with such high percentages, there was only a sprinkling of the Shops' anglophone metal-working tradesmen left to be found in other parts of the city. One final comment about these five areas is that, except for No. 3 (Verdun), they all lie within a mile (1.6 km) of the Shops thus making it very easy to get to and from work by walking.

Area 7, which lies mostly between one and two miles (1.6 and 3.2 km) from the Shops, represents the centre of the city, being bordered by St. Lawrence Boulevard and Guy Street to the east and west and by the mountain and the river to the north and south, respectively. This area included the central business, commercial and shopping districts and the better residential areas to the north on the lower slopes of the mountain. It also included at its southern end the lower-class area of 'Griffintown' which, for many years after the 1850s, contained a high proportion of the Irish labourers of the city (Reynolds, 1935, p. 117).

Reference to Tables 15 to 17 indicates that, in the years 1902 to 1917, Area 7 contained only from 2% to 4% of all the workers traced. For the 1880 to 1896 period (Tables 18 and 19), it had been somewhat more popular, with 4% to 9% of the total, but the general indications are that, basically, it was never an important living area for the Shops' workers during the study period.

Area 8 is bounded by Guy Street/Cote des Neiges Road to the east, the Montreal city limits of 1880 to the west and the Lachine Canal to the south. As Tables 15 to 17 show, it was not an important area for Shops' men in later years, housing only 1% to 3% of them from 1902 to 1917. However, as Table 18 indicates, it did contain significant numbers of Car Department employees in 1880 and 1888 with 16% and 12%, respectively, of the men traced living there, the majority

being francophone carpenters.

Area 9 consists of the Village of Sainte-Cunegonde, a relatively small area bounded by the 1880 Montreal city limits on the east, Atwater Avenue to the west and the Lachine Canal to the south. It was absorbed by Montreal in 1905. Again, it was not an important residential area for the Shops' crew, but it is of some interest as those that did live there were mainly francophone and, generally, carpenters. It had had its own French (Catholic) church since 1877 and thus it is reasonable that it should have continued to be a basically francophone community as the northern part of Saint-Gabriel (Area 5) tended to do, also.

The same thing applies to Area 10 (the Town of Saint-Henri) which was also absorbed by Montreal in 1905. It was much larger than Sainte-Cunegonde and had a strong francophone tradition as is indicated by its churches (three French and one English Catholic) dating from 1868, 1893, 1911 and 1908, respectively. However, despite this, as the tables show, it was not an important living area for the Shops, accounting for only 4% to 6% of the workers traced from 1902 to 1917 and slightly more (6% to 8%) before. Of the men who lived there, the carpenters were the dominant group, amounting to from 45% to 90% of the total.

From the point of view of convenience, it is surprising that more of the francophone Shops' workers did not live in these

basically French areas (Nos. 8, 9 and 10) as they were all within 2 miles (3.2 km) of the Shops and there were several canal crossings (Shearer, Charlevoix and Atwater Streets) that gave more ~~or~~ less direct access by walking to and from the Shops. However, for those travelling to work by public transportation, the situation probably was not so attractive, as the street railway lines, whether horse or electric tram, ran mainly on the east-west streets rather than on the north-south streets in that part of Montreal. Therefore, to travel to and from work by streetcar from north of the canal would have required a round-about route.

Summarizing the data regarding Areas 7 to 10, which represent all the residential areas west of St. Lawrence Boulevard and north of the Lachine Canal (except for No. 11 (Westmount) which, as the tables show, was such an unimportant factor that it can be ignored), the following situation is found:

Table E

	1880[1]	1888[1]	1896[1]	1902	1910	1917
Proportion of the total Shops' workers traced who lived in Areas 7 to 10, inclusive	34%	30%	24%	16%	12%	8%
Proportion of the total anglophones traced who lived in Areas 7 to 10, inclusive	25%	20%	16%	9%	9%	7%
Proportion of the total francophones traced who lived in Areas 7 to 10, inclusive	50%	48%	40%	29%	18%	10%

[1] Car Department only

Thus, allowing for the fact that the figures for 1902, 1910 and 1917 refer to the whole Shops and those for 1880, 1888 and 1896 refer to the Car Derpartment only, it is evident that the proportions of the traceable Shops' employees who lived in Areas 7 to 10 decreased steadily from 1880 to 1917. This apparent drop in the popularity of this area seemed to affect the francophones to a greater extent than it did the anglophones.

Regarding the occupational make-up of the Shops' workers living in the above areas from 1902 to 1917, the carpenters accounted for 45% to 50% and the skilled metal workers about 12% (except in 1917 when they shot up to 30%). Generally, a high percentage of the carpenters involved were francophone, but the reverse applied for the metal workers who lived there as they were always strongly anglophone. However, as there were only eight or nine of the latter involved during the 1902 to 1917 period, the fact that they were sometimes all anglophones had no appreciable effect on the strongly francophone nature of the area.

The remaining residential areas of Montreal and its suburbs all lay east of St. Lawrence Boulevard and/or stretched away to the north as indicated on Map 2. This is, traditionally, the French area of the city. Area 12 is bounded by St. Lawrence Boulevard to the west, the 1880 city limits to the north and east and the river to the south. Area 13 (outside Montreal in 1880) lies north of No. 12, being bounded

essentially by the mountain to the west and the Canadian Pacific Railway tracks to the east and north. Areas 14 and 15, also outside Montreal in 1880, were arbitrarily chosen to cover the remainder of the possible residential areas east of Nos. 12 and 13.

For practical purposes, the whole area east of St. Lawrence Boulevard was over two miles (3.2 km) from the Shops and therefore beyond practical walking distance. However, it was well served by the horse railway and, later, by the electric tram system, with good service along both the major east-west streets and the important north-south streets such as Park Avenue, St. Lawrence Boulevard and Saint-Denis and Amherst Streets. By 1907 and possibly earlier, this north-south service had been extended at least as far north as Belanger Street, about two thirds of the distance from the St. Lawrence River to the Back River (Binns, 1973, p. 22). Also, by 1910, service had been extended eastward to Maisonneuve (Reynolds, 1935, p. 121) thus facilitating commuting by workers to and from areas to the west.

As Table 18 shows, even as early as 1880 a few of the Car Department's workers, amounting to 7% of the total men traced, were living in Area 12. As might be expected, they were primarily francophone and they were all carpenters. A few men began appearing farther out in Areas 13 and 14 in 1888 and 1896 but they were so few as not to be significant.

However, by 1902 (with reference to the whole Shops in Tables 15 to 17) the migration of men to the east seemed to quicken, with 13% of the total traced being there and this increased to 18% in 1910 and 24% by the end of 1917. As seems natural, Area 12 always contained more of these men than any of the other three areas but, even far-distant Area 15 housed about 6% of the total men traced by 1917.

In these eastern areas, francophones from the Shops always outnumbered their anglophone confreres by a wide margin. Similarly, the carpenters always outnumbered the skilled metal-working tradesmen, the former accounting for 48%, 48% and 52% of the Shops' people living there in 1902, 1910 and 1917, respectively, compared with 10%, 15% and 25% for the latter. As was the case for Areas 7 to 10, these carpenters in the East End were also predominantly francophone but the skilled metal workers were more or less evenly divided between anglophones and francophones.

The proportions of the Shops' workers traced that lived east of St. Lawrence Boulevard were, as stated above, 13%, 18% and 24% in 1902, 1910 and 1917, respectively. The rising trend obvious here more or less balances the falling trend noted previously for the same years for Areas 7 to 10, north of the Lachine Canal. Thus, it appears that, effectively, Shops' workers were abandoning the latter area and, instead, choosing to live east of St. Lawrence Boulevard in spite of the considerably greater distances from the Shops.

This movement to the east can probably be explained by several developments:

1. The electrification of the street railway system and the simultaneous adoption of year-around operation in 1894, with other probable service improvements being made in succeeding years;

2. The construction of the very large Angus Shops by the Canadian Pacific Railway around 1904 in the southern part of Area 15. Thousands of men from all the skilled trades were employed there;

3. The development of large manufacturing and engineering firms such as the St. Lawrence Sugar Refining Company (1887), the Montreal Locomotive Works, United Shoe Machinery Company of Canada (1911), Canadian Steel Foundries, Warden-King & Son (1904) and Canadian Vickers Limited's shipyard (1910) in Maisonneuve and beyond in Area 14, all of which resulted in the creation of hundreds of jobs for skilled tradesmen (Reynolds, 1935, p. 121).

The labour demand for these large plants, when combined with that from the Angus Shops, probably attracted many men to settle somewhere in the East End from where they could either reach these new opportunities easily or they could travel back by streetcar to the Point St. Charles Shops, depending on the state of the labour market and the hirings and lay-offs at one end of the city or the other.

Residential Persistence

As a 'spin-off' from the studies of both occupational persistence and residential patterns among the Shops' hourly-paid workers, it was desired to obtain some idea, even if only for one or two trades, of the degree of persistence that existed in residential location. In other words, were there many instances where men lived at the same address for years at a time or did most workers move very frequently?

As will have become evident, the basic data on which this study is based refer to payroll months six or eight years apart (mainly the latter). Thus, while it would have possible to have tried to determine annual residential persistence rates by obtaining a list of selected Shops' employees at any particular date and then trying to trace their addresses in the city directories from year to year, it would not have been possible to tell from this approach if the men involved had continued to be employees of the Shops during the same period. Therefore, it was decided to determine the persistence rates over the longer eight (or six) year periods readily available from the study data. The two trades that were picked for investigation were the machinists and the carpenters, as representing the major trades in the Motive Power Department and the Car Department, respectively.

The study was based on lists of workers who had already been

found to have persisted in their job classifications from 1902 to 1910, at least, in the case of the machinists and from 1880 to 1888, 1888 to 1896 and 1902 to 1910 for the carpenters. In every case, if traceable in the city directories, the address of each man was noted for the base year and for each subsequent data record period for which it could be found. It was then a simple matter to review each list and note the cases where a man had had the same address in two or more consecutive record periods. It is possible, of course, that, just because a man was living at, say, 63 Favard Street in both January, 1902 and January, 1910, he might not have been at this address steadily throughout the intervening years. While this possibility exists, it was not investigated, it being assumed that the same address at both ends of a period indicated continuous residence throughout the period. However, the possibility should be born in mind when interpreting the results, which are summarized in Table 20.

As can be seen from the table, the proportion of the men who displayed significant residential persistence was quite variable with respect to both the trade and the particular period involved. The apparent degree of persistence was also very dependant on the way in which it is expressed. Thus, regarding the machinists in the period from 1902 to 1917, 64% of the men who both persisted in the job and whose addresses were traceable, persisted at the same address for at least eight years and 12% for an additional eight years

PERSISTENCE IN RESIDENTIAL LOCATION AMONG THOSE WHO PERSISTED IN OCCUPATIONAL CLASSIFICATIONS

TABLE 20

Trade	Total Payroll at Start of Period	Period	No of Men Who Persisted in Job in First 8 Years of Period		No of Job Persistees Whose Addresses Could be Traced		No. of Men Who had Same Address for the Time Shown Below in the Specified Period							
							8 Years*		16 Years*		22 Years		30 Years	
			No	% of Total in Trade	No	% of Total in Trade	No.	% of Those Traced	No	% of Those Traced	No	% of Those Traced	No	% of Those Traced
Machinists	160	1902 - 1917	73	45.6	33	20 6	21	63 6	4	12.1	Nil		Nil	
Carpenters	263	1902 - 1917	110	41.8	58	22.1	28	48.3	16	27 6	4**	6 9	1**	1.7
Carpenters	164	1880 - 1902	64	39 0	42	25.6	30	71 4	11	26 2	4	9.5	Nil	
Carpenters	181	1888 - 1910	96	53.0	52	28.7	36	69 2	15	28 8	5	9,6	1**	1 9

* - In some cases, where the period from 1896 to 1902 was included, these periods were 6 and 14 years rather than 8 and 16 years

** - This is possible as the period of continuous residence commenced before or lasted beyond the stated limits of the period

(for a total of 16 years). However, if based on the total machinists' crew in 1902 of 160 men (many of whom neither persisted in the job nor could be traced as to address), the proportion of residential persisters drops to 13%.

Concerning the carpenters from 1902 to 1917, 48% of the traceable men persisted for at least eight years, 28% for an additional eight years (for a total of 16 years), 7% for an additional six years (for a total of 22 years) and 2% for a further additional eight years (for a total of 30 years). (The latter two periods of persistence were possible as the periods of residence for the particular men involved started before 1902).

If a different base period such as 1880 to 1902 is chosen for the carpenters, as shown, 71% of those traceable are found to have persisted in the same homes for at least eight years, 26% for an additional eight years (for a total of 16 years) and 10% for an additional six years (for a total of 22 years). Similarly, for a base period from 1888 to 1910, 69% of the traceable men stayed in the same homes for at least eight years, 29% for a further eight years, 10% for a further six years and 2% for a further eight years (for a total of 30 years). It must be realized regarding these three different bases periods for the carpenters that there were overlaps of men from one period to another and therefore the same men were frequently involved in the different periods. Thus, while Table 20 might seem to imply

that there were two men who lived at the same addresses for 30 years, in actual fact they were both the same man at the same address.

The ethnic breakdowns for the residential persisters were 86% anglophone, 5% francophone and 9% Other for the machinists, which agreed perfectly with the ethnic composition of the full machinists' crew of January, 1902. For the persisting carpenters (of the 1880 to 1902 period) the split was 64% anglophone, 33% francophone and 3% Other compared with the ethnic composition of 60%, 31% and 9%, respectively, for the full 1880 carpenter crew. Thus, there was little ethnic difference among the persisters that might help to explain their actions.

Regarding the locations of the persisters' homes, the machinists involved all lived in Areas 1 to 5 south of the Lachine Canal, 76% of them being in Area 2, with the remainder spread equally throughout the other four areas. As, (from Table 15), 88% of the traceable 1902 machinists lived in Areas 1 to 5, it is not surprising that most or all of the residential persisters among them lived in these same areas. The carpenters (of the 1880 to 1902 period) were somewhat more spread out, 64% being in Areas 1 to 5 and 36% in Areas 7 to 10. These proportions agree fairly closely with the proportions of all the traceable 1880 carpenters who were found to be living in these areas (Table 18). The single area that contained the highest proportion of the

residentially persisting carpenters was No. 1 with six men living there. It was closely followed by Areas 2 and 4 with five persisters each, while the remainder were spread throughout the other six areas. The fact that the largest number lived in Area 1 is consistent with fact that an unusually high proportion of the people who lived there owned their own houses, especially in the earlier years (private communication).

The general conclusions that can be drawn, based on this very brief study of residential persistence for the 1880 to 1917 period at the Point St. Charles Shops, would seem to be that there is a fairly strong indication that, for the Shops' machinists and carpenters, 45% to 70% of the men who both persisted in their trade for eight years and whose addresses could be traced, stayed at the same address for at least eight years and smaller percentages stayed for longer periods. This can be, possibly, more simply expressed and generalized by saying that, for these two trades, from 10% to 20% of all the men in the total crews might have been expected to live at the same addresses for eight years or more. Beyond that it is not possible to go until more work has been done both for other skilled trades and for the lower occupational echelons to determine the probable actions of the men in their crews.

Summary

The findings of this study of residential patterns and

persistence can be summarized as follows:

Area 2, lying wholly within a mile (1.6 km) of the Shops, contained by far the largest proportion of the Shops' workers, amounting, from 1880 to 1896, to 19% to 36% and, from 1902 to 1917, to about 40%, of the total. Among these men, during the latter period, were included about 57% of all the anglophones but only about 6% of all the francophones, thus making this area, as far as the Shops' men were concerned, a highly anglophone district with relatively few francophones in it. Skilled metal-working tradesmen made up about half of the Shops' group living in the area with carpenters and semi-skilled and unskilled employees making up the balance.

The larger, total, residential area lying south of the Lachine Canal (made up of Areas 1 to 5, inclusive), which, except for No. 3 (Verdun), also lay almost entirely within one mile (1.6 km) of the Shops, contained from 58% to 70% of all the Shops' workers during the 1880 - 1917 period. These included 72% to 83% of all the anglophones but only 30% to 45% of the francophones. Perhaps even more significant, this combined area included about 85% of all the skilled metal-workers, thus leaving only a few of these skilled men to be spread over the rest of the city.

The residential area lying north of the Lachine Canal and west of St. Lawrence Boulevard (composed of Areas 7 to 10,

inclusive), almost all of which lay within two miles (3.2 km) of the Shops, was an area of declining importance to the Shops' workers as, while 34% of them lived there in 1880, this had dropped to 8% by 1917. It was a predominantly francophone area with carpenters accounting for about 50%, skilled metal workers for about 12% and lower-level employees the remainder of the Shops' employees living there.

The area lying east of St. Lawrence Boulevard, which contained half or more of the total population of Montreal, was an area of growing importance for the Shops' workers as, while only about 7% of them lived there prior to 1902, this had risen to 24% by the end of 1917. Effectively, it was replacing Areas 7 to 10 as the area next in importance to Areas 1 to 5 south of the Canal. This large area included Areas 12 to 15, inclusive, and, basically, was all from two to five miles (3.2 to 8 km) or more away from the Shops. It was very predominantly francophone. The Shops' people living there were about 50% carpenters and 15% to 20% skilled metal workers, with the remainder coming from the lower echelons.

There are strong indications that from 10% to 20% of the total machinists and carpenters in the Shops tended to live at the same addresses for eight years or more.

Conclusions

The conclusions that can be drawn apply directly to only the

ten trades that could be studied in the time available and which represented, generally, about half the total work force of the Shops. However, it is felt that it is most likely that the general pattern of residential location that has been found would also be found for most of the remaining half of the Shops' crew (with the exception of the Central and eastern European who largely made up the Others category as, in general, their addresses could not be found). Thus, it is suggested that the following conclusions can be applied to the whole Shops' crew (except for the Others):

During the study period from 1880 to 1917, from 46% to 67% of the Shops' crew lived within one mile, or very easy walking distance, of the Shops.

During the period from 1880 to 1917, 73% to 94% of the Shops' workers lived within two miles (3.2 km), (or practical walking distance) of the Shops. The highest figures (86% to 94%) represent the situation in 1902 and before whereas the lowest figures (79% and 73%) represent the situation in 1910 and 1917, respectively.

During the study period, the greater part (87% to 98%) of the anglophone workers in the Shops lived within two miles (3.2 km) of their work. Again, the highest figures (92% to 98%) represented the earlier years and the lowest figures (87% to 88%) the later years of the period.

During the first half of the study period, 80% to 85% of the Shops' francophones lived within two miles (3.2 km) of the Shops. However, in the second half, these proportions were considerably lower, being 74% in 1902 but dropping to 54% by 1917.

As the years progressed in the study period, the residential areas lying east of St. Lawrence Boulevard and stretching away to the north (all being beyond practical walking distance to or from the Shops) became much more popular as living space for the Shops' workers. This applied particularly to the francophones, 44% of whom were living in these areas by 1917.

There was very definite ethnic segregation in the residential districts of Montreal, Areas 1, 2 and 4 being essentially anglophone, Nos. 5, 8, 9, 10 and 12 to 15 being basically francophone, while No. 3 (Verdun) tended to have fairly equal numbers of francophones and anglophones. The basically anglophone areas, along with Verdun, were where the vast majority of the Shops' anglophones lived.

From 46% to 63% of the Shops' workers living in Area 2 from 1902 to 1917, at least, were skilled metal-working tradesmen with the balance being made up of carpenters (19% to 24%) and lower-level employees. This was the only area where these skilled metal workers were in the majority among the Shops' workers.

From 10% to 20% of the total machinist and carpenter crews could be expected to live at the same addresses for at least eight years, with smaller numbers persisting in their homes for even longer periods.

Chapter Seven

Conclusions

The conclusions reached, based on the studies outlined in the previous five chapters, will be found below under the appropriate heading.

Acquisition of the Land

In 1853, the Grand Trunk Railway bought about 120 arpents (41 ha) of unoccupied farm land in the Point St. Charles area in the west end of Montreal, as the site of its Montreal terminus. No consideration was given to choosing a separate site for its shops, as it was apparently accepted without question that the shops were an integral part of the terminus. Thus the shops were erected between 1854 and 1856 on the Point St. Charles site where they still exist as the main shops of Canadian National Railways, the successor of the Grand Trunk. Based on this long tenure, it is concluded that the Point St. Charles site has supplied the needs of the railway well, and that the Shops have been able to carry out their function efficiently and expeditiously, operating on this site.

The presence of, first, the whole railway terminus and, eventually, just the main shops and some yards in Point St.

Charles, undoubtedly had a strong influence on how the residential areas of this part of Montreal developed. It became, essentially, a working-class area but, due to the need for many highly skilled, fully trained artisans and tradesmen in the Shops (and in other near-by factories and industrial operations), there was a strong representation of such skilled men throughout this living area. Without a doubt, this contributed stability to the area and helped it to evolve into a closely knit community that was proud of its place among the residential communities of Montreal.

Ethnicity in the Shops

The Point St. Charles Shops, during the study period at least, were divided into two departments, the Motive Power Department and the Car Department. The former, as its name implies, was concerned with the construction and/or maintenance of locomotives, while the latter restricted its attention to passenger and freight cars. The Motive Power Department employed about twice as many men as the Car Department. It was essentially a metal-working area, its employees being mainly blacksmiths, boilermakers, machinists and smaller numbers of miscellaneous tradesmen such as pipefitters, brass finishers and so on, along with their assistants and labourers. During the study period from 1902 to 1917, anglophones were greatly in the majority among the skilled, metal-working tradesmen and in the Motive Power Department, generally.

The Car Department, during the 1880 to 1917 study period, was basically a wood-working area, its main trades being carpenters, painters and labourers. Anglophones were in the majority among the carpenters from 1880 to 1888 and, in the whole department, from 1880 to 1896. However, the francophones displaced the anglophones as the dominant group among the carpenters from 1896 onwards and, in the department as a whole, from 1902 onwards. The painting crew had a strong francophone majority throughout the entire 47-year study period, usually outnumbering the anglophones by more than two to one.

In both departments, francophones, while always present to a greater or lesser extent, were seldom in the majority in the unskilled, labourer and labourer-type occupations. In the earlier years in such occupations, they were usually considerably outnumbered by anglophones. In later years, Central and eastern European immigrants largely displaced anglophones from many of the unskilled job classifications and usually outnumbered the francophones as well, or did so in conjunction with the remaining anglophones.

The only occupation besides painting in which the francophones were consistently in the majority over the anglophones was the moulding operation. This occupation, which combined knowledge and skill with a lot of hot, dirty work, was, of course, an integral part of the foundry. This only went into operation at the Shops around 1884 (G.T.R.

Half-Yearly Report of June 30th, 1884) and was not a long-established, vital part of the organization.

The general pattern of the ethnic distribution of workers in the various trades confirmed the pattern which was suggested by the literature review: anglophones would be found to be in the majority in most of the skilled trades with the exception of wood working and painting. In these, francophones would be found to be greatly in the majority.

While plausible reasons can be advanced to justify the continuing anglophone dominance of the skilled, metal-working operations in the Motive Power Department, it seems probable that it can be ascribed, at least in part, to prejudice or bias in favour of anglophones by the generally English-speaking supervision of the department. This conclusion is based on the anglophone domination of the Motive Power carpenter and painter crews in face of the fact that the same (but much larger) crews in the Car Department were strongly francophone (from 1896 onwards).

Hours of Work, Rates of Pay and Earnings

In general, work schedules called for hourly-paid men in the Shops to work about 7-1/2 to 9 hours per day and 45 to 55 hours per week. There was usually some work on Saturdays but little, if any, on Sundays. While most of the Shops' workers enjoyed relatively modern working hours (considering the period in question), there were always small numbers of

men, such as the watchmen, who regularly worked excessively long hours of up to 300 to 400 per month. Usually, these men seemed to work steadily, day after day, seven days a week, seldom ever having a day off.

Earnings in any period depended on the hours worked, the rate of pay per hour and whether a man was working on a 'contract'. The latter is believed to have been a form of piece-work payment scheme. While it might be thought that men working on contracts would have had to work a different number of hours per day or per week than men working against simple wage rates, there was little or no evidence of this, both groups of men working much the same hours.

In any listing of wage rates (or gross earnings) arranged in descending order, the skilled, metal-working tradesmen usually fell into the top third, less-skilled metal workers, wood workers and painters generally appeared in the middle third, and the labourers and other unskilled workers were to be found in the lower third. As the metal workers mainly worked in the Motive Power Department, it followed that the earnings of the tradesmen in this department were generally higher than those in the Car Department. However, at the lower end of the scale, among the unskilled labourers, there was little difference in the remuneration of the employees of the two departments.

Based on the very limited amount of data available in the

literature, it appears that the Shops' wage rates were generally competitive with the going rates in Montreal. The rates rose as time passed, more or less keeping pace with the rising cost of living. The result was that the machinists, for example, who averaged almost 19 cents per hour in January, 1902, were receiving an average of about 33 cents per hour almost 16 years later, in December, 1917. In comparison, the rates for the unskilled Motive Power labourers were just over 11 and 22 cents per hour, respectively.

The system of paying men on a contract basis became more common as time passed. The Shops' management had the right to require men to work on a contract or on a straight wage rate system, as it preferred. Between 1902 and 1917, the number of 'Shops' men on contract rose from about one third to two thirds of the total crew, the unskilled labourers being the least involved, at about one third of their number.

Within any job classification, there were always wide ranges in the rates of pay between individual workers. Considering the example of the machinists again, there was a range of 13 cents per hour between the highest and the lowest rates in 1902, which widened to 30 cents per hour in 1917. For the unskilled labourers, the ranges were much smaller, amounting to only 3 and 3-1/2 cents per hour, respectively.

There were also wide ranges in the amounts that individuals received for contract pay. In January, 1902, payments ranged from $0.50 to $41 for particular individuals (not necessarily within the same job classification) while, in December, 1917, amounts paid varied from $0.21 to $76.55. With very large payments such as the latter being made, it is obvious that some men were receiving more in contract pay alone, than other men were receiving in total wages.

Within job classifications, bias based on ethnicity did not appear to be a factor affecting the relative earnings of anglophones and francophones. Between classifications, it may have been a factor, if such facts as the high proportion of anglophones in the Motive Power Department, or of francophones in later years in the Car Department, were based on ethnic bias, as seems probable.

Persistence

Although there were some anomalies, in general, for the job classifications studied, there was a fairly strong direct relationship between skill level requirements and persistence rates, throughout the study period. There was some indication that persistence rates were higher from 1880 to 1902 than from 1902 to 1917, but the true situation may have been obscured by the effect of the War.

While comparisons are difficult, as most persistence data reported in the literature are for company, rather than for

job, persistence, the persistence rates at Point St. Charles appeared to have been fairly high as compared to those experienced by other industries.

There did not seem to be any significant difference between anglophones and francophones in their tendencies to persist in particular job classifications.

Places of Residence and the Distance to Work

While the following conclusions strictly apply only to the traceable workers in the trades studied, which, from 1902 to 1917, included about half of the total Shops' crew, it is felt that there is a strong likelihood that they can be applied also to most of the remaining anglophone and francophone workers in the Shops. Little can be said about the 'Others' (Central and eastern Europeans who, by 1917, made up about 23% of the Shops' personnel) as, in general, few of them could be found in the city directory listings and thus their places of residence are not known.

Generally, during the study period from 1880 to 1917, half to two thirds of the Shops' workers lived within one mile (1.6 km) of the Shops and three quarters or more lived within two miles (3.2 km). Thus, a large majority of the workers lived within practical walking distance of their work. The proportion within such easy reach of the Shops changed as time passed, dropping from about 90% within two miles (3.2 km) to about 75% by 1917.

Considering the ethnic components of the crew, about 90% of the anglophones lived within two miles (3.2 km) of the Shops, the proportions being slightly higher in the earlier years than in the later. The francophones exhibited less of a tendency to live within practical walking distance, about 82% of them living within two miles (3.2 km) before 1902 but falling off sharply to about 55% by 1917.

As the years passed, many of the francophones, slowly taking advantage of the improved service resulting from the electrification of the street railway in 1894, migrated to the developing francophone residential areas east of St. Lawrence Boulevard and stretching away to the north. By 1917, about 45% of this group were living in these areas, all of them, for practical purposes, being over two miles (3.2 km) away from the Shops and hence beyond practical walking distance.

As far as the Shops' workers are concerned, Areas 1, 2 and 4 on Map 2 were essentially anglophone, Areas 5, 8, 9, 10, and 12 to 15 were strongly francophone, and Area 3 (Verdun) had about equal numbers of the two ethnic groups. Most of the Shops' anglophones lived in Areas 1, 2, 3 and 4. Area 2, in the 1902 to 1917 period, contained the largest single group of Shops' men (about 40% of the total), including about 57% of all the anglophones. About half of these Area 2 anglophones were skilled metal-working tradesmen, with the balance consisting of carpenters and lower echelon

employees.

From a brief enquiry into the patterns of residential persistence among the Shops' workers during the 1880 to 1917 study period, it appears that about 10% - 20% of the machinist and carpenter crews lived in the same dwellings for eight years, with smaller numbers persisting for longer periods.

Evaluation of the Study

For the period covered, an outstanding feature of this study was the richness and completeness of the sets of data available. This permitted carrying out a detailed investigation of the Grand Trunk's acquisition of the land for the Montreal terminus and a detailed payroll analysis, both of which yielded many facts that should be of use and of interest for future scholarly investigations.

However, with reference to the payroll analysis in particular, the period covered (mainly, 1902 to 1917, inclusive, for the whole Shops but also 1880 to 1896, in part, for the Car Department only) was very restricted and represented only the closing years of the Grand Trunk Railway's existence as a separate, going concern. By 1918 or shortly thereafter, the line was essentially bankrupt (Currie, 1957,p. 450).

While the railway's financial problems may not have affected

the ordinary hourly-paid workers much, if at all, yet they may have created conditions in the company which resulted in, say, the last 10 to 20 years of its existence not being typical. Thus, to make sure that the information and facts obtained from the payroll analysis were not distorted by the financial problems (or even by different social climates in Montreal at different periods), it would be wise to repeat the payroll analysis at one or two other periods of the company's existence if the necessary data should prove to be, or should become, available. This proviso is important because, due to the loss of records in the 1875 fire, it may be unlikely that any other sets of payroll data exist. This, of course, would preclude any further work from being done but, in any case, it should be realized the results obtained from the present study may not be typical, as the 1902 to 1917 period may not have been a typical one for the company.

As explained earlier, this study represents only the first phase of a larger study that is required to do justice to the investigation of the history, development and impact of the Point St. Charles Shops during their 130 years of existence. While the completion of the study is needed to help fill in a large gap that exists in the industrial, commercial and social history of Montreal from 1850 onwards, it may prove difficult to carry out this task in an adequate manner due to the existing paucity of information or data. The 1875 fire is credited with having destroyed countless records of all kinds (accounting, payroll and engineering)

relating to the first twenty years of the Grand Trunk's history, and record keeping after that appears to have been spotty and not well organized.

During the early stages of the study, a considerable amount of time was devoted to surveying two potential sources of information regarding the railway's affairs - the files of trade journals and the files of the corps of notaries who practised in Montreal during the Grand Trunk period. It was hoped that the first would yield information regarding the Shops' physical plant and show how it changed and developed over the years. It was also hoped that the second would yield a fairly detailed and comprehensive picture, through copies of notarized agreements and documents, of the Shops' commercial arrangements with Montreal suppliers. Such information would be a valuable indicator of the Shops' impact on the community.

Typical trade journals which concentrated on the affairs of railways and railway shops in Canada and the United States were American Railroad Journal (later, American Engineer and Railroad Journal), Railway Age (later, Railroad Gazette), Chicago Railway Review (later, Railway and Engineering Review), Railway and Shipping World (later, Canadian Railway and Marine World), and so on. The first three of these publications dated from far back into the the 19th century. They all frequently contained articles on the shops of various railways and, in fact, there were articles in them

concerning the Grand Trunk shops at Stratford, Ontario and Battle Creek, Michigan. However, little could be found regarding the Point St. Charles Shops and thus this possible source of information proved to be barren.

To search through notarial files in the most efficient manner, it was first necessary to know the name of the Grand Trunk's notary in Montreal. This was ascertained (originally, Théode Doucet who was then eventually succeeded by his son, Théodore Doucet) and it was then a simple matter to review the répertoires of these men. However, when these yielded little or nothing in the way of the desired information, the répertoires of many other Montreal notaries were reviewed, without any success. It was eventually necessary to conclude that either the notarial files were also barren of the type of information wanted or that the search had failed to turn up the particular notaries who may have been involved with it.

Three potential sources of information on Shops' personnel are Grand Trunk pension records, church records from the Point St. Charles area and manuscript census records. None of these sources was investigated during the present study and thus it is not known what is available. If available, they might be a rewarding source of data and information for a future investigator even though to search through them thoroughly might be a very demanding task.

One final possible source of information on the Shops, whether concerning the physical plant, commercial arrangements, the employees and their concerns or the social impact of the organization, would be the newspaper files of the period. As there are no indexes to these files, a comprehensive search of all the papers concerned would be very time consuming and, as the files are all on microfilm, it would also be exhausting, physically. Unfortunately, there is no way of judging in advance if such a search would be justified by the results that might be obtained. However, unless such an effort is made, it may be impossible to continue the research into the history, development and impact of the Point St. Charles Shops, which are the oldest organization of their kind that is still active in Canada, for lack of finding sufficient data to justify the effort involved.

Despite the possibly, rather sombre, outlook on the possibility of continuing the research into the Shops, we should be thankful for the existence of the data that formed the basis for the present study. It has made it possible to carry out an inquiry into certain aspects of late 19th/early 20th century heavy industrial operations which, otherwise, could not have been made. It is hoped that the findings from this inquiry will be of continuing use to scholars and other investigators.

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