

**THE NATIONAL SAMPLE OF THE 1901 CENSUS OF CANADA:
A NEW SOURCE FOR THE STUDY OF THE WORKING CLASS**

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The Canadian Families Project (CFP) is an interdisciplinary research project funded by the Social Sciences and Humanities Research Council of Canada.² The research team includes twelve scholars from the disciplines of history, sociology, geography, and historical demography. This paper introduces the first major database created by the project - a national sample of the Canadian census of 1901.³ The argument is that the census will allow, among other new research opportunities, a new understanding of the Canadian working class at the turn of the century. Specifically, the census allows us to define more precisely than ever before patterns of division and fragmentation within the working class that were emerging at the end of the first stage of industrialization.

Bryan Palmer's history of the Canadian working class argues that by the 1890s Canada stood between the era of "competitive capitalism" and the era of monopoly capital. At this juncture a working class existed but was fractured internally. Women and unskilled workers were slipping further into "unorganized dependence on capital's mercy." In the 1880s "skilled and unskilled workers came together" in the Knights of Labor, but the potential for class cohesion was lost, and the advance of monopoly capital meant "a labour force fragmented ethnoculturally and structurally." The increasing concentration of productive forces meant a new demand for unskilled labour, but "the complexities of new labour markets" in the emerging era of monopoly capital meant that such "primitive distinctions" as that between skilled and unskilled were soon obsolete.⁴

Palmer's account of the social formation at the beginning of the twentieth century is both plausible and widely accepted. The plausibility of his description derives largely from two

sources: first, a Canadian historical literature that focusses on labour politics, trade unions, and working-class culture (as it appeared in specific locations); second, Palmer's understanding of structural changes in industrial capitalism as they occurred elsewhere, particularly in Britain and the United States. Although Palmer himself analyzes the economic structure of the 1880s in his work (with Greg Kealey) on the Knights of Labor, nevertheless our understanding of the working class derives little from any systematic analyses of industrial structures, occupation hierarchies, wage or income distributions, labour markets, or the residential patterns of workers.⁵ Even Mark Leier's recent attempt to revive the theory of labour aristocracy in the Canadian context infers the presence of a labour aristocracy as much from evidence about politics and ideology as from evidence about occupational structures and wage differentials (and Leier even equates hourly or monthly wages with incomes).⁶ Conspicuously absent from the footnotes of Canadian labour historians are references to writings by labour economists or social scientists. In part this is because few labour economists in Canada address historical questions and evidence. More important is the disinclination of Canadian labour historians to undertake social scientific analysis, sometimes through a mistaken fear of "economism," but also because their education rarely if ever includes a training in social science methods.⁷

In 1901 Canadian census takers took an unprecedented interest in the labour force and in wage earners in particular. Where U.S. census takers asked two questions relating to the characteristics and activity of the labour force, and British census takers asked five, the Canadian census asked fourteen questions (Table 1). The occupation information was to be more precise than ever before.⁸ Particularly important are the four columns relating to employment status. Scholars who use nineteenth-century censuses have invested enormous intellectual effort in deriving socio-

economic rankings from occupation data alone. We may need to group occupations in the 1901 census by some measure of status or rank - but the census itself offers an unprecedented window into social class, because it required all adults to define their employment status. An "employee" was one who worked for salary or wage. Employers were defined as owners of means of production and employers of labour: "mill owners, large farmers, etc., whose work is done by others for which salaries or wages are paid." Those "working on own account" were the self-employed: "persons employed in gainful occupation, doing their own work." Those "living on own means" were persons "who do not carry on any remunerative calling and live on their own means, as from incomes, superannuations, annuities, pensions, etc."⁹ An affirmative response in one category did not preclude the same response in another: thus we can even identify those who crossed class categories. Census takers did not stop there. They allow us to see where wage earners worked (factory, home), and how many months they worked in each location (factory, home or other). Wage earners also reported annual earnings and earnings from a secondary occupation or trade, and response rates were generally high.¹⁰

Table 1: Work Force Characteristics: Canadian, British and U.S. Censuses, 1880-1901^a

	1880-81	1890-91	1900-01
Occupation	A,B,C	A,B,C	A,B,C
Unemployed	A, B	A,C	A ^b
Employer	-- ^c	B,C	B,C
Wage earner	-- ^c	B,C	B,C
Working on own account	--	B ^d	B,C

Retired	--	--	C
Living on own means	--	--	C
Working at home	--	--	B,C
Working in factory	--	--	C
Working in both factory and home	--	--	C
Months employed at trade in factory	--	--	C
Months employed at trade in home	--	--	C
Months employed in other occupation than trade in factory or home	--	--	C
Earnings from occupation or trade	--	--	C
Extra earnings from other than chief occupation or trade	--	--	C

a) A = American, B = British, C = Canadian

b) The Canadian census did ask questions concerning months worked and from those one can estimate unemployment.

c) Great Britain did provide for the collection of employer and wage-earner information before 1891, but the question was only asked of the employer and the placement on the back of the form led most respondents to ignore it. The 1891 census was the first time the question was put to the general populace.

d) If the Canadian respondent had an occupation, was not unemployed, and left the employer and wage-earner questions blank, then one can infer that the respondent was self-employed or working on own account.

Focussing on internal patterns of difference within the working class is not likely to change our views on either the importance of class, as both an analytical category and a primary condition of living and working experience in industrializing Canada. The evidence for both recurring class conflict, and the importance of class relations, is abundant and conclusive. Among the many ways in which the 1901 census confirms the importance of class, I mention only a few.

First, there appears to be a relationship between class and household type, and insofar as comparisons across censuses can be made, the relationship appears to have strengthened between 1871 and 1901. In their analysis of the 1871 census of Canada, Gordon Darroch and Michael Ornstein concluded that "there were very significant variations in household composition among provincial economies, between rural and urban areas, as well as among occupation, ethnic, and immigrant groups." Each of these variables was significant in the presence of the others. With a few exceptions, they found that occupational differences were "less striking" than the regional and rural/urban differences, and they concluded that "the complexity of households...varies more with regional social and economic conditions than with class differences, so far as these are reflected in occupational differences."¹¹ The first results from the national sample of the 1901 census suggest that there was a relationship between the class position of household heads and the size and type of dwelling in which they resided (dwelling type is nearly co-extensive with household, defined as a housekeeping unit)(Tables 2 and 3).¹² We also find a strong relationship between the occupation of the household head and dwelling type.¹³

Multivariate analysis confirms the importance of class in its relationship to dwelling type (see Appendix A). Of several available variables, all contributed significantly to the model (head's age, head's occupation, head's ethnic origin, and the head's class) except one - the variable that distinguished (in four categories) rural from urban residence. The finding was unexpected, given the marked urban-rural difference in household types that Darroch and Ornstein found in 1871.

Table 2: Number of persons per dwelling by class of household head, 1901

95% confidence interval for mean

	Mean	Std dev.	Lower bound	Upper bound
Working on own account	5.34	5.26	5.26	5.42
Employee	5.18	6.26	5.08	5.27
Employer	5.69	3.26	5.6	5.78
Living on own means	3.80	2.47	3.71	3.89

Table 3: Distribution of dwelling types by class of household head, 1901 (column %)

Dwelling type	Working on own account	Employee	Employer	Living on own means	All dwellings
Primary individuals	6.1	5.4	5.8	13.7	7.0
Single parents	8.0	4.8	6.9	28.6	7.9
Married couple childless	8.9	11.5	8.6	16.1	10.3

Married couple w child	55.3	60.9	58.1	23.3	56.0
Multiple	3.0	4.0	3.4	4.9	3.8
Extended	18.7	13.4	17.2	13.4	15.1

The results so far suggest that the analysis of household structure must give priority to class differences as they relate to the economic conditions of co-residence. It could be that rural/urban distinctions were less important in 1901 than in 1871. Canadian historians have argued that there were significant differences in household composition between rural and urban economies, and that these differences relate to land availability, inheritance practices, and the availability of wage labour.¹⁴ More recently there is a tendency to question the meaning and distinctiveness of the "rural" and to question a modernization paradigm that sets up a misleading duality between rural and urban.¹⁵ Our results suggest that by 1901 patterns of household formation may reflect social, economic and demographic changes influencing both rural and urban populations in similar ways.

There are many ways in which evidence on housing confirms the difference between the experience of workers and that of others. In Canada, as elsewhere, pioneer social investigators (most notably Herbert Ames in the 1890s) studied the living conditions of the poor in urban working-class neighbourhoods.¹⁶ The census confirms, first of all, that overcrowding was experienced by segments of the working class, and much less often by those in other classes. The social class of the household head had a significant relationship with the number of rooms per person (Table 4). Urban working-class populations in Canada may have had larger dwelling

spaces than similar populations in Europe; but if we define overcrowding to mean a ratio of rooms to people of less than 1:1, then overcrowding was commonplace in Canadian cities and it was not restricted to easily identifiable slum areas. In Canada as a whole one in every eight working people lived in a dwelling where there were more than 2 people for every room; 46 percent of workers lived in a dwelling where the number of people per room was greater than one. The results are preliminary, but they invite us to move beyond the study of specific slum neighbourhoods, and to use the property schedule to examine various aspects of housing for the working class as a whole.

Table 4: Mean of rooms/people ratios by class of household head, 1901

95% confidence interval for mean

	Mean	Std. dev.	Lower bound	Upper bound	N
Working on own account	1.55	1.29	1.53	1.57	16,333
Employee	1.41	1.09	1.39	1.42	17,030
Employer	1.59	1.31	1.56	1.63	5,023
Living on own means	2.38	1.79	2.32	2.45	3,013

The census also allows the labour historian to make connections with the new research of historical geographers who study patterns of clustering in urban space.

Geographers have paid particular attention to the development of working-class neighbourhoods, and to the intersection of ethnicity, occupation and social class, but their work is rarely cited by labour historians.¹⁷ Our database will allow results of reciprocal benefit to geographers. The

national sample of the 1901 census allows levels of comparative analysis that few historical geographers have been able to attempt (and where our national sample is not large enough to allow sufficient cases at the district or neighbourhood level, we have over-sampled: we have 10 percent samples for six cities, for instance - Victoria, Vancouver, Winnipeg, Hamilton, Montreal and Halifax).¹⁸ We have comprehensive evidence on ethnicity, class and occupation on the adult populations of the country. We do not need to use surrogates, such as occupation category for class, or birthplace for ethnicity. Since respondents were asked to state their "racial or tribal origin," the census allows us to know individuals' own definition of their ethnicity, as well as it can ever be known. We do not need to focus simply on heads of households, as many geographers do. Finally, we can move beyond the level of the city ward, to the finer levels of sub-ward analysis achieved by such geographers as Daniel Hiebert, Larry McCann and Sheri Olson. We can analyze spatial patterns at the very fine level of the census subdistrict.

The simplest way to show how far workers were concentrated by district is to use a standard measure of segregation, known as the dissimilarity index. This index measures the degree to which a particular group was spread evenly among districts in a city. Evenness is defined with respect to that group's share of the total city population. If 20 percent of all adults in a city were factory workers, then an even pattern means that in each ward 20 percent will be factory workers. The index of dissimilarity gives the percentage of all factory workers in the city who would have to move in order to achieve an even residential pattern.¹⁹ Although there are no exact benchmarks of significance, an index number of 25 and above is generally considered to be important.

To demonstrate how the method is used, we begin by looking at Hamilton, the city in which industrialization had advanced furthest. The 1901 census divided the city into 7 districts (corresponding to the 7 city wards) and 64 subdistricts. Table 5 compares ward-level and subdistrict-level segregation by social class. We break down the working class into four broad categories: white collar (mainly sales, service, and clerical workers), blue collar (mainly industrial and transport employees), the unskilled (general labourers) and housewives. The latter are a separate category: since they were part of the adult labouring population it would be a serious mistake to omit them, and their form of non-waged labour gave them a class position arguably different from that of others. To omit them would be to take a part of the population (such as heads of households) as reflective of the whole. Inclusion of housewives has the effect of lowering very slightly our weighted index for each variable.²⁰

Table 5 demonstrates that the extent of segregation, when measured at the level of ward, is under-stated. For instance, those living on their own means and the self-employed were distributed relatively evenly across wards. The subdistrict indices reveal, however, that members of these classes did tend to cluster spatially. In only one class category did ward-level and subdistrict-level analysis turn up similar results: labouring employees were clustered within subdistricts, and those subdistricts were also located within particular wards. Those wards were two east end areas where much of the city's new industrial growth was taking place. The spatial segregation of social classes should not be exaggerated, however: both ward and subdistrict analyses demonstrate that skilled blue collar workers lived throughout Hamilton. At a finer level, even a majority of factory workers lived outside the two east end industrial wards. The weighted

index suggests that, even at the subdistrict level, segregation by class was not very marked, even in one of Canada's most industrialized cities.

Table 5: Spatial Segregation Of Adults By Social Class, Hamilton Wards and Subdistricts, 1901

Class	7 Ward indices of dissimilarity	64 subdistrict indices of dissimilarity
Living on own means	13.8	39.4
Employer	22.9	48.3
Self-employed	10.9	24.9
White collar employee	13.9	21.1
Blue collar employee	10.0	15.7
Labourer	40.8	42.7
Housewife	5.8	11.9
No occupation	7.6	17.9
Weighted index	10.6	18.6

There are many possible dimensions of segregation in the urban environment. Geographers such as Hiebert have argued persuasively that class and ethnic segregation interact with each other. We need to ask what other variables entered into the social geography of the city, and whether our results for Hamilton are unique to that city. Were other variables more important in Hamilton? Was class more or less important in other cities? The easiest way to answer these questions is to use weighted indices of the kind presented in Table 5. These indices are measures of the degree to which each category accounts for spatial segregation in the city.

Table 6: Indices Of Dissimilarity For Six Cities, 1901

	Victoria	Vancouver	Winnipeg	Hamilton	Halifax	Montreal
Birthplace	27.3	23.1	20.2	11.4	9.2	12.5
Ethnic origin	27.3	26.1	23.3	18.8	21.5	24.1
Immigrant	15.5	16.0	15.8	9.2	8.2	10.1
Class	19.0	21.4	21.0	18.6	18.8	15.2
Occupation	22.7	26.6	23.0	18.5	21.6	16.8
Work duration	20.6	22.7	14.7	17.0	28.6	14.2

Note: birthplace was divided into six categories: Canada, U.K., Ireland, continental Europe, Asia and other. Ethnic origin was taken from the "racial or tribal origin" column in the census and was divided into 7 categories: French, English, Scottish, Irish, European, Asian, and other. Immigrant refers to three groups: recent immigrants (since 1890 for Hamilton and since 1897 for all other cities), all other immigrants, and non-immigrants. Occupation refers to ten categories by economic sector: professional/managerial, clerical, sales, service, primary industry, industrial production, transportation, general labour, housewives, and people of working age with no listed occupation.

Table 6 presents weighted indices for six key variables for six cities. The results call into question the idea that there was "great variation in the degree and nature of residential differentiation" among cities.²¹ Most indices fall within a narrow range and most are below 25

(although there were interesting and important variations within each category). In all cities the index for ethnicity is higher than the index for class. There appears to be no simple relationship between stage of industrialization and extent of segregation, by class or by any other variable. The class indices are slightly lower in the eastern industrial cities than in the western cities. This result is consistent with the conclusions of Hiebert, in his studies of Winnipeg and Toronto. Where Olivier Zunz argued for Detroit that class superseded ethnicity as the "salient feature" of urban segregation, Hiebert argues that Zunz's conclusion cannot be applied to Canada. In Canada class and ethnicity were thoroughly interwoven in cities where most industry remained small in scale compared to industry in Detroit and other large American cities.²²

The spatial distancing of workers could have important implications for the politics and class consciousness of the working class. Several years ago the geographer Richard Harris challenged both historians and urban geographers to tackle directly the interaction between spatial segregation and political consciousness. From the work of urban historians and geographers he drew the hypothesis that segregation and concentration of workers played "a positive role in articulating dissent, not because it fosters intolerance...but because neighbourly proximity fosters action."²³ As Hiebert has shown for Winnipeg in 1919, the argument is persuasive for certain times and places. For historians, however, spatial variation and residential patterns are often residuals, the dimensions of experience that might matter if more were known, or merely the spatial stage on which larger influences, such as those of class and gender, were played out. It is likely that spatial contexts are more important than historians sometimes realize. There was certainly little opportunity for cohesion if workers were scattered, and if particularly disadvantaged groups (such as the unemployed) were spatially segregated from the rest of the

working class.²⁴ The working-class voter was spread through many city wards; politicians were more likely to make pan-class than class-specific appeals.²⁵ Gathering together to articulate grievances and to consider collective action required transcending barriers of space: having incurred the costs of travel to and from their workplaces, workers had to travel again to meet each other during evenings or week-ends. For a majority, the union hall was in another neighbourhood.

The 1901 census will allow an entirely new approach to the study of another critical aspect of working-class experience: material living standards. This census gives self-reported annual earnings. Annual earnings are given consistently only for wage earners (occasionally others did report earnings, but it remains to be seen whether these data can be used in any way). Previously labour historians have occasionally used information on hourly or monthly wages and have noted the differences between wages of the skilled and the unskilled. But wages are not the same as incomes; rarely do other sources tell us how many hours or months an individual worked. Self-reported annual earnings have the great advantage that they are adjusted for work duration over the year.

I had expected to find marked earnings disparities; but I had expected that these would be less extreme than inequities in individual annual incomes in Canada in later times, since in 1901 the earnings of the wealthiest (mainly employers) are not included. Given that we are observing only the working class of 1901, the differentials in earnings are remarkable (Table 7). Results at the national level reflect to some extent the differences in living costs and average wages across regions; they also reflect the marked differences in wages between men and women.²⁶

Controlling for region and for sex, however, reduces the income disparities only slightly. The distributions are remarkably similar to those for all income-earners in Canada in the 1980s. Table 7 also reports gini coefficients (a standard measure of disparities) and these are also very close to the coefficients for incomes in Canada as a whole in the 1980s.²⁷

Table 7: Percentage of total wage incomes by quintile, 1901

Quintile	All Canada	Ontario: men	Ontarion: women
Bottom 20% of earners	5.12	6.48	6.55
2nd quintile	10.64	12.69	12.33
3rd quintile	16.94	17.38	18.14
4th quintile	22.95	23.39	24.29
top 20%	44.36	40.07	38.69
Gini coefficient	.38	.34	.33

In Canada and the United States there is much debate over recent rises in income disparities, and some argue that inequities at the individual level are misleading because household incomes - the preferred measure - indicate a much smaller increase in inequities in the 1980s and 1990s. The 1901 census allows Canadian historians, for the first time, to estimate family or household incomes for the working class. We might expect that family-income disparities would be less than individual-income disparities, since lower-income individuals might have lived in families

that deployed more than one wage earner. Table 8 shows the distribution of nuclear-family incomes for Canada and Ontario (nuclear-family incomes are the sum of incomes for close relatives of the head or first-listed person, but not including incomes of lodgers and non-kin).²⁸

Table 8: Percentage of total family incomes by quintile, 1901

Quintile	All Canada	Ontario
Bottom 20%	6.43	7.68
2nd quintile	11.59	12.03
3rd quintile	15.93	16.16
4th quintile	21.97	22.20
Top 20%	44.09	41.92
Gini coefficient	.37	.34

At the national level and in Ontario inequities at the family-income level are very similar to those at the individual level. The income distributions are remarkably similar to those for Canada as a whole in the 1980s and so are the gini coefficients.²⁹ There are a number of reasons why family earnings did not compensate much for the low incomes of individuals in the poorest quintiles. First, in Canada as elsewhere the annual earnings of male heads of household fell as men aged. Among poor families, therefore, women and children who entered the labour force were often trying to compensate for the declining earnings of the ageing male head.³⁰ Second, in Canada the labour force participation of married women was low, and when women and children entered the

labour force their average earnings were much lower than those of men. Furthermore, where the incomes of male household heads were low, the incomes of their family relations were also likely to be low and long periods of unemployment were more frequent.³¹ Putting more than one wage earner into the labour force was often necessary for family survival, but working-class families whose first breadwinner was at a high income level were more likely to use this strategy successfully.

Much more can be done with family incomes. In assessing living standards of families we need to adjust for the number of consumers in the family. The disadvantage of observing the sum of earnings by all family members is that one- or two-person families might dominate the lowest income quintile, simply because such families had fewer earners. We have compiled estimates of living costs in six cities, and so we can also adjust for the very different costs in different regions. After making these adjustments there is some smoothing of the income disparities, but the inequities remain extreme, and in all six cities an average of one in seven families was living below a carefully defined minimum-survival "poverty line."³²

The income disparities reflect a complex of influences, including occupational structures, unemployment duration, gender, and family cycle. The 1901 census will allow us to disentangle these influences and to move beyond simple dichotomies such as skilled/unskilled. Among industrial employees, for instance, we can distinguish factory workers from "home" workers and from "other" workers (the latter were mainly in small non-factory workplaces, defined in the census as workplaces having fewer than five workers). Table 9 shows some of the important differences between factory and non-factory workers for six cities.³³ The size of the earnings

advantage in favour of non-factory workers is something of a surprise, and it is consistent across most industries experiencing rapid change in scale, technology and management. The advantage in wages was off-set by the greater risk of being unemployed, however. As factory output captured a greater share of markets, the smaller workshops responded by shutting down, either seasonally or permanently, and laying off their relatively well-paid workers. This evidence helps to make sense of the craft workers' enduring defence of the small workshop. Workers in these shops tended to be older than factory workers; the overwhelming majority were male.³⁴ Their higher monthly wage might come close to the desired "family wage," and to offer some protection against the effect of seasonal lay-off. This wage advantage, however, was being eroded by the effects of competition and prolonged periods without work. Unemployment affected the older artisanate first, and among them the fear of unemployment was most keen.

Table 9: Average Work Duration, Average Annual Earnings and Average Monthly Wages by Type Of Workplace, Industrial Production Occupations, Six Cities, 1901

Workplace	Months Worked	Annual earnings(\$)	Monthly Wage (\$)	N
Factory	11.05	386	35.17	3003
Home	11.22	357	31.99	381
Other	10.45	459	44.54	1096
F ratio	36.43	45.70	81.86	
significance	.0000	.0000	.0000	

Note: the six cities are Victoria, Vancouver, Winnipeg, Hamilton, Montreal, Halifax.

The importance of structural changes associated with industrialization becomes more clear if we shift the focus from individuals, and treat occupations as our unit of analysis. In this working class there were occupational elites, distinguished by stability of employment and by relatively high annual earnings. These were not craft elites, but a new managerial and supervisory elite of workers appearing at this stage of industrialization, even before American principles of scientific management were well known in Canada.

The occupation information in the 1901 census is sufficiently detailed that we can distinguish managers, supervisors, superintendents, inspectors, overseers and foremen from other workers. Table 10 suggests one possible hierarchy of workers, from a category at the top that includes managers, managing secretaries, and masters, to a category including apprentices, boys, girls, and helpers at the bottom. Not all workers had such designations, and the table also reports the mean annual earnings of factory workers for the country as a whole. The workplace hierarchy was also a wage hierarchy: supervisors and inspectors earned two and a half times the average factory-worker's income; foremen earned 1.6 times the average factory-worker's income.

Table 10: Mean earnings by occupation category, 1901

				95% confidence interval for mean	
Occupation category	Mean (\$)	Std dev	N	Lower bound	Upper bound
Manager, managing sec'ty., master, captain etc.	1069	1262	345	935	1203

Superintendent, supervisor, inspector	939	620	116	825	1053
Agent, ass't agent	679	484	424	632	725
Foreman, overseer, boss	598	464	386	552	645
Labourer, hand, employee, man, operative	248	231	9134	243	253
Apprentice, boy, girl, helper, child	166	146	708	155	176
All factory workers	364	267	10,651	359	370

These conclusions derive from our national sample, but it is possible to extend the analysis to the census returns for the total population. In 1907 the government published the Census and Statistics Bulletin I: Wage-Earners By Occupations, which includes a list of all occupations reported by wage-earners in the 1901 census. For each occupation the Bulletin reports the average months worked, the average annual earnings, and the total number of workers. The Bulletin lists 1,592 distinct occupations for the whole of the country. Managers, supervisors, foremen, overseers and inspectors were a small group in the labour force: in the country as a whole there were 11,039 men in this elite and 292 women - less than 2 in every 100 male employees, and 2 in every thousand women. Particularly numerous in the manufacturing sector, this elite was rewarded in two ways - by high average monthly wages and by relatively constant employment.

The supervisory elite in manufacturing was part of a larger sub-set of waged or salaried occupations emerging in the economy as a whole. I refer not to the labour aristocracy in the older

marxian definition, an aristocracy which too easily shades into an amorphous mass of "skilled" workers. Instead we are observing a broad managerial and supervisory elite appearing in resource production, primary and secondary industry, services, and government. The managerial and supervisory elite includes those who held disciplinary authority over other wage-earners in manufacturing, construction, transportation, and mining. It includes also those who were acquiring other kinds of authority over the work process: the small number of highly-trained professionals, hired by private capital and sometimes by government, to apply scientific knowledge to production and to economic development. Our elite includes engineers, chemists, metallurgists, draughtsmen, designers, accountants, lawyers, insurance and advertising agents, and railway "officials". The elite also includes those government employees who clearly held managerial or supervisory responsibility, either within government itself or over sections of the population as a whole - not the clerks but "officials," police, and prison and asylum guards. This broadly-defined managerial and supervisory elite (26,733 persons) was 3.3 percent of the Canadian labour force. The elite was disproportionately male (less than 2 percent were women). Average annual earnings for men in the elite was \$850 (compared to an overall work force average of \$387).

Table 11: Occupations of Machinists, Printers, Saw Mill Workers and Coal Miners, 1901

Occupation	Aggregate wage earners		Average months worked		Average yearly earnings (\$)*	
	Male	Female	Female	Male	Female	Male
Machinists	12,622	0	11.23	-	485	-

Machinists apprentices:	800	0	11.17	-	172	-
Machinists foremen:	35	0	11.59	-	902	-
Machinists managers:	7	0	12.00	-	1,008	-
Machinists superintendent:	6	0	12.00	-	1,500	-
Printers, compositors & pressmen:	6,476	489	11.43	11.12	452	206
Printers etc. apprentice:	453	9	11.04	10.22	129	86
Printers etc. foremen:	27	0	11.88	-	707	-
Printers etc. managers:	23	0	12.00	-	1,307	-
Printers etc. superintendent:	2	0	12.00	-	1,825	-
Saw mill employees:	5,219	0	9.53	-	305	-

Saw mill foremen:	99	0	10.03	-	685	-
Saw mill managers:	34	0	11.48	-	1,305	-
Saw mill superintendents:	2	0	12.00	-	1,300	-
Coal miners:	7,856	0	10.74	-	468	-
Coal miners labourers:	1,780	0	10.46	-	304	-
Coal miners foremen:	126	0	11.51	-	483	-
Coal miners managers:	26	0	11.85	-	1,164	-
Coal miners inspectors:	9	0	11.89	-	609	-
Coal miners superintendents:	2	0	12.00	-	1,800	-

* Earnings are rounded to the nearest dollar.

Table 11 gives four examples of the very common occupational hierarchy at the turn of the century: workers, foremen, managers, and superintendents. At the top of the hierarchy were

those who enjoyed stable employment, a rare privilege within the structure of industrial capitalism. Skill was one part of this privilege: managerial workers possessed types of knowledge, often the result of lengthy training and even expensive education, which was reserved for a minority. Training, however, meant more than simply the acquisition of knowledge. It meant also the acceptance of values and ideology: these were the reliable workers whose loyalty carried its own value, ensuring that employers would pay a premium to retain their services. The demand for managers and engineers might fluctuate, but the knowledge they possessed was restricted to a few, and so companies ensured access to their knowledge through long-term contractual employment. These were the new brainworkers and supervisory taskmasters: full employment was a reward, but also a mark of their status within the new authority structure of industrial capitalism. A further reward came in the form of wages, increasingly dignified as an annual "salary". The work of the managerial elite was sheltered from the effects of both season and markets.

At the other extreme from the managerial elite were workers in jobs which did not guarantee year-round work. Almost a quarter of Canadian "employees" held jobs for which the average months worked was less than ten. Most of these vulnerable jobs were in manufacturing. The average annual earnings in such occupations was a mere \$297. In these occupations were the most vulnerable of Canadian workers, those for whom the lack of stable employment compounded the problem of low wages.

These workplace hierarchies can no longer be understood in the context of "work process" alone. Workplaces and labour markets were a major part of working-class experience: they brought

workers together into large workplaces and divided them at the same time. But workplace and family can no longer be understood as separate conditions of work and survival. At the job site workers were hired and fired by a foreman, who lived in a different neighbourhood, sent his children to different schools, and enjoyed greater success in finding stable employment for his teen-aged offspring. For the wives and children of both the labourer and the foreman, work changed over the family cycle and the life course. Labour history becomes family history, and perhaps no source in Canadian history so invites the conjunction of these sub-themes within history as does the 1901 census of Canada. Work and home were often overlapping spaces, not separate spheres, but we still see only dimly the connections between spatial location and mental landscapes. We have yet to meet the challenge presented by the historical geographers. The conclusion is, therefore, less a conclusion than a series of beginnings, or a long agenda for further research of a kind that can only be undertaken within a large and well-funded collaborative project.

APPENDIX A: LOGLINEAR ANALYSIS OF DWELLING TYPES

The appropriate procedure in categorical data analysis is loglinear modelling, in which one models cell counts in a contingency table in terms of associations among the variables. In our case, however, we wish to model the effects of several explanatory variables on a response variable (dwelling type) that has more than two values. A subset of loglinear models serves this purpose, and corresponds to generalized logit models.³⁵ The logit is familiar to those who use logistic regression: it is the log of the odds that an event will occur. With multinomial responses there is a baseline category (in SAS it is usually the last of the values in the variable dwelling type) and the logit model compares each category in the response variable to the baseline. Since we want to know which variables are associated with dwelling type, we want a logit model with two-way effects including dwelling type. The model, as fitted in the CATMOD procedures in SAS, is as follows:

$$\log (\pi_i / \pi_5) = \alpha + \beta_{\text{head's age}} + \beta_{\text{head's class}} + \beta_{\text{urban/rural}} + \beta_{\text{head's origin}} + \beta_{\text{head's occup}} ; i=1....4$$

This model corresponds to a loglinear model but a rather complex one, even when the number of values in each variable is drastically reduced: head's age has 3 levels, class has 4, urban/rural has 4, head's origin has 5, and head's occupation has 4, so in fact we are fitting 960 parameters (3 x 4 x 4 x 5 x 4) in the model and 4 intercept terms (since there are 4 categories to compare to the baseline in the response variable). Even this model is a reduced one, omitting the variable province (and increasing the number of variables or the number of categories entails the risk of an unacceptable number of zero's in the multi-way contingency tables in the model). One could spend a great deal of time looking for patterns in the parameters, but for the moment we focus on the model itself. Are each of the 5 two-way effects significant? Can the model be reduced without losing explanatory power? To answer these questions we use the likelihood-ratio statistic, which measures the goodness-of-fit and has a chi-square distribution. The table below shows the change in the likelihood ratio, the change in the degrees of freedom, and the significance level of the change, as each of the variables is removed from the model. The result is a measure of the contribution of each variable to the model. The urban-rural variable is non-significant.

Likelihood ratio analysis of the logit model³⁶
 Full model: likelihood ratio = 3581.3 2868 d.f.

Variable removed: Head's age Head's origin Head's occup Head's class Urban/rural

Likelihood ratio	1613.67	1024.06	1362.54	1414.36	1517.06
degrees of freedom	1052	644	888	904	860
Change in LR	1967.63	2557.27	2218.76	2166.94	2064.24
Change in d.f. 1816	2224	1980	1964	2008	
Significance	P< .05	P< .05	P< .05	P< .05	p> .1

Notes

1. Much of the research for this paper was done in collaboration with Peter Baskerville. I am also indebted to Douglas K. Thompson, my able assistant at the Canadian Families Project, and to Marc Trottier, the Project's computer programmer.

2. The host institution is the University of Victoria. Other participating universities are York University, the University of Ottawa, Concordia University, and the Université de Sherbrooke. Co-investigators are Bettina Bradbury, Peter Baskerville, Gordon Darroch, Lisa Dillon, Chad Gaffield, Danielle Gauvreau, Annalee Golz, Peter Gossage, Lynne Marks, Larry McCann, Ian MacPherson and Eric Sager (Project Director). The Project is funded for five years by a Major Collaborative Research Initiative grant from the Social Sciences and Humanities Research Council of Canada.

3. The sample, completed late in 1997, is a five percent random sample of Schedule 1 (the "Nominal Return of the Living") and Schedule 2 ("Buildings and Lands"). The sampling point is dwelling house, numbered in sequence by enumerators within each census subdivision. All individuals within each sampled dwelling were entered. Sample precision is necessarily greater for dwellings than for individuals. We have checked the individual data, where possible, against published census totals (the frequency distributions of age, sex, and marital status) and found that the distributions in the sample mirror almost exactly the distributions in the published national aggregates. The sample is slightly less than five percent of the national population, partly because a few sections of the original enumerators' returns were not microfilmed. The sample contains 50,943 dwellings and 265,286 individuals. Methods, consistency check programs and numeric codes are described in a user's guide prepared by Eric W. Sager, Douglas K. Thompson (project manager) and Marc Trottier (computer programmer). The sample and the user's guide will become available to all interested scholars at the conclusion of the Canadian Families Project in 2000 or 2001.

4. Bryan D. Palmer, Working-Class Experience: Rethinking the History of Canadian Labour 1880-1991 (Toronto: McClelland and Stewart, 1992), 152, 155-6.

5. Gregory Kealey and Bryan Palmer, Dreaming of What Might Be: The Knights of Labor in Ontario (New York: Cambridge University Press, 1982).

6. Mark Leier, "Ethnicity, Urbanism and the Labour Aristocracy," Canadian Historical Review, LXXIV, 4 (Dec.1993), 510-534.

7. A range of primary sources remain under-utilized. The annual reports of the Ontario Bureau of Industry in the 1880s and 1890s, and the reports of the Bureau of Labor after 1900 contain a wealth of information about industries, occupations, wages and trade unions. Craig Heron uses these sources in his excellent chapter on "Factory Workers" in Paul Craven, ed., Labouring Lives: Work and Workers in Nineteenth-Century Ontario (Toronto: University of Toronto Press, 1995), 479-590. The censuses of 1871, 1881 and 1891 are available but under-utilized. See, however, Gordon Darroch and Lee Soltow, Property and Inequality in Victorian Ontario: Structural Patterns and Cultural Communities in the 1871 Census (Toronto, 1994); Darroch and

Michael Ornstein, "Ethnicity and Class: Transitions over a Decade: Ontario 1861-1871," in David J. Bercuson, ed., Canadian Labour History: Selected Readings (Toronto: Copp Clark, 1993), and other articles by Darroch. See also Michael Katz, Michael Doucet and Mark Stern, The Social Organization of Early Industrial Capitalism (Cambridge: Harvard University Press, 1982). Bettina Bradbury uses censuses in Working Families. Age, Gender and Daily Survival in Industrializing Montreal (Toronto: McClelland & Stewart, 1993). See also the special issue on "Use of Census Manuscript Data for Historical Research," Histoire sociale/Social History, XXVIII, 56 (Nov.1995). Systematic analyses of strike patterns appear in Bryan D. Palmer, "Labour Protest and Organization in Nineteenth-Century Canada," Labour/Le Travail (20 (Fall 1987), 61-84; Douglas Cruikshank and Gregory S. Kealey, "Canadian Strike Statistics, 1891-1950," Labour/Le Travail (Fall 1987), 85-145; Kealey and Cruikshank, "Strikes," Historical Atlas of Canada III: Addressing the Twentieth Century (Toronto: University of Toronto Press, 1990), Plate 39.

8. "Expressions such as 'manufacturer,' 'merchant,' and 'labourer' are inadequate; the particular branch of industry, or trade, or profession or other calling in which the person enumerated is engaged should be given." Instructions to Officers Employed in the Taking of the Census (Ottawa, 1901), 15.

9. Ibid., 15. See also Peter Baskerville and Eric W. Sager, "Finding the Work Force in the 1901 Census of Canada," Histoire sociale/Social History, XXVIII, 56 (Nov.1995), 521-39.

10. Baskerville and Sager, "Finding the Work Force," 534.

11. Darroch and Ornstein, "Family and Household...", 170.

12. A more refined analysis may require moving beyond the "head of the household" to a more inclusive measure of the class position of the household. A dwelling is defined in the census as any separate habitable structure. In Canada as a whole 96 percent of dwellings contained only one family or household. The census definition of family was "parents and sons and daughters united in a living and housekeeping community." A household was "all persons living in a housekeeping community, whether related by ties or blood or not, but usually with one of their number occupying the position of head." Single persons living alone were to be considered as households. Lodgers "who rent rooms and only sleep in the house will be included in the list of those households which carry on their housekeeping for them, although they may take meals elsewhere." Instructions, 12. The two-way cross-tabulations suggest that the relationship between dwelling type and class is a strong one. The household profile of those "living on own means" was markedly different from that of others. There is a relationship between gender and the results in Table 3, since those "living on own means" were disproportionately women (including widows, single parents and other female heads). The class position of those "living on own means" may be uncertain and the effect of this one group was substantial: nevertheless, even when this group is removed there remains a significant relationship between the three remaining classes and dwelling types.

13. The contingency coefficient is .39 when head's occupation is grouped into 9 categories.

14. Darroch and Ornstein, 166.

15. Gérard Bouchard, "Marginality, Co-Integration and Change: Social History as a Critical Exercise" (paper presented to the Canadian Historical Association, St. John's, June 1997); Ruth Sandwell, "Rural Reconstruction: Towards a New Synthesis in Canadian History," Histoire sociale/Social History XXVII, no.53 (May 1994), 1-32. See also Chad Gaffield, "Children, Schooling and Family Reproduction in Nineteenth-Century Ontario," Canadian Historical Review, LXXII no.2 (1991), 157-91. See also Gérard Bouchard, Quelques Arpents d'Amérique: Population, économie, famille au Saguenay 1838-1971 (Montreal: Boreal, 1996), 310ff. The distinction between rural and urban is particularly important for understanding family structure in England, of course: among others, Michael Anderson, Family Structure in Nineteenth Century Lancashire (Cambridge 1971) and Approaches to the History of the Western Family 1500-1914 (London 1980).

16. Herbert Brown Ames, The City Below the Hill, introduced by P. Rutherford (Toronto 1972).

17. For Montreal Sherry Olson, "Occupations and Residential Spaces in Nineteenth Century Montreal," Historical Methods 22 (1989), 81-96; Robert Lewis, "The Segregated City: Class, Residential Patterns, and the Development of Industrial Districts in Montreal, 1861 and 1901," Journal of Urban History 17 (1991), 123-52. For Winnipeg, Daniel Hiebert, "Class, Ethnicity and Residential Structure: The Social Geography of Winnipeg, 1901-1921," Journal of Historical Geography 17 (1991), 56-86. For Halifax, Larry D. McCann, "Class, Ethnicity and Residential Differentiation in Mid-Victorian Halifax," in Richard Preston and B. Mitchell, eds., Reflections and Visions: Twenty-Five Years of Geography at Waterloo (Waterloo 1990), 239-65. For Vancouver, Donna McCririck and Graeme Wynn, "Building 'Self-Respect and Hopefulness': The Development of Blue Collar Suburbs in Early Vancouver," in Graeme Wynn, ed, People, Places, Patterns, Processes: Geographical Perspectives on the Canadian Past (Toronto 1990), 267-284; R. M. Galois, "Social Structure in Space: The Making of Vancouver" (PhD dissertation, Simon Fraser University, 1979). For Hamilton, Michael J. Doucet, "Working-class Housing in a Small Nineteenth Century Canadian City: Hamilton, Ontario, 1852-1881," in Gregory S. Kealey and Peter Warrian, eds, Essays in Canadian Working-Class History (Toronto 1976), 83-105; John C. Weaver, Hamilton: An Illustrated History (Toronto 1982); and, of course, the pioneering work of Michael B. Katz, Michael J. Doucet and Mark J. Stern, The Social Organization of Early Industrial Capitalism (Cambridge 1982). Also very useful is Daniel Hiebert, "The Social Geography of Toronto in 1931: A Study of Residential Differentiation and Social Structure," Journal of Historical Geography 21 (1995), 55-74.

18. The ten percent samples of these six cities were completed (by Eric Sager and Peter Baskerville) before the Canadian Families Project began. These samples are stratified by dwelling size: that is, ten percent samples were selected from each of four strata (1 to 3 persons, 4 or 5 persons, 6 to 9 persons, and 10 or more persons). We have also entered into our computer files all individuals in Amherst, Nova Scotia; Dunnville and Kentville, Ontario; and Vernon, B.C. We plan also to enter all persons in Nelson, Victoria and Vancouver, B.C.

19. For an instructive use of the index see Douglas S. Massey and Nancy A. Denton, American Apartheid: Segregation and the Making of the Underclass (Cambridge, Mass. 1993), 20 passim. An overview of traditional segregation indices can be found in Theodore Hershberg, Alan N. Bustin, and Susan Drobis, "The Historical Study of Urban Space," Historical Methods Newsletter 9 (1976), 99-136; see also Nathan Kantrowitz, "The Index of Dissimilarity: A Measurement of Residential Segregation for Historical Analysis," Historical Methods Newsletter 7 (1974), 285-89.

20. Some might argue that the inclusion of housewives limits the opportunity for meaningful comparisons with the work of historical geographers whose indices are calculated with reference only to adult males in the work force or to household heads. For comparative purposes we re-calculated the weighted indices for class for Hamilton and Victoria, excluding housewives and adults with no occupation. The revised indices for Hamilton were only slightly higher (21.5 compared to 18.6 for class). The revised indices for Victoria in Table 6 fell slightly with housewives and persons of no occupation omitted (from 19.0 to 18.1 for class).

21. Robert Lewis, "The Segregated City," 127.

22. Hiebert, "The Social Geography of Toronto in 1931," 68-71; Olivier Zunz, The Changing Face of Inequality: Urbanization, Industrial Development, and Immigrants in Detroit, 1880-1920 (Chicago: University of Chicago Press, 1982).

23. Richard Harris, "Residential Segregation and Class Formation in Canadian Cities: A Critical Review," Canadian Geographer, 28 (1984), 192.

24. So we argue in Peter Baskerville and Eric W. Sager, Unwilling Idlers: The Urban Unemployed and their Families in Late Victorian Canada (University of Toronto Press, forthcoming, spring 1998), chapter 5.

25. James D. Anderson, "The Municipal Government Reform Movement in Western Canada, 1880-1920," in Alan Artibise and Gilbert Stelter, eds, The Useable Urban Past: Planning and Politics in the Modern Canadian City (Toronto 1979), 73-111; John C. Weaver, "'Toronto's Metropolis' Revisited: A Critical Assessment of Urban Reform in Canada, 1890-1920," in Gilbert Stelter and Alan Artibise, The Canadian City: Essays in Urban and Social History (Ottawa 1984), 473.

26. Our work so far confirms that there were dramatic differences in incomes across cities. Perhaps more surprising are the measures of disparities within cities. The table below presents average annual earnings of all employees by city, before adjusting for differences in living costs. While the difference among cities is obvious enough, more important are the standard deviations, indicating large variations within each city, and the ubiquitous income differences between men and women.

Annual Earnings Of Employees By City, 1901 (\$)

City	Men			Women		
	Mean	Std dev.	No.	Mean	Std dev.	No.
Vancouver	546	418	904	353	220	110
Victoria	559	463	540	294	239	73
Winnipeg	651	508	905	277	227	259
Hamilton	441	340	1306	207	112	497
Montreal	484	353	4740	217	176	1838
Halifax	407	293	657	171	113	231

27. SPSS does not calculate gini coefficients. I am indebted to Marc Trottier, computer programmer with the Canadian Families Project, for writing a program to calculate the ginis from the ungrouped data.

28. Thus aunts and uncles are not included. Once again these are working-class families, insofar as class may be inferred from the employment status of the head or first-listed person. I simply selected only families where the head or first-listed person was an employee.

29. The distribution of incomes for Canadian families and unattached individuals in 1990 were as follows: the bottom 20 percent had 4.7 percent of incomes; the 2nd quintile had 10.4 percent; 3rd quintile, 16.9 percent; 4th quintile, 24.8 percent; top 20 percent, 43.3 percent. Lars Osberg, "Canada's Economic Performance: Inequality, Poverty and Growth," in Robert C. Allen and Gideon Rosenbluth, eds., False Promises: The Failure of Conservative Economics (Vancouver: New Star, 1992), 40; Statistics Canada, Income Distribution by Size, catalogue 13-207 (1990, 1991).

30. On the decline in husband's average earnings in their forties and fifties in this time period see Michael R. Haines, "Industrial Work and the Family Life Cycle, 1889/1890," in Paul Uselding, ed., Research in Economic History, 4 (1979), 298-301.

31. These points are discussed in Baskerville and Sager, Unwilling Idlers (forthcoming), chapters 6 and 7.

32. The results are in Baskerville and Sager, Unwilling Idlers, chapter 7. See also Eric W. Sager and Peter Baskerville, "Unemployment, Living Standards, and the Working-Class Family in

Urban Canada in 1901," The History of the Family: An International Quarterly, vol.2 no.3 (1997), 229-254. In all six cities taken together 14.4 percent of families had negative real annual family incomes; a further 9.5 percent had between \$0 and \$70 real annual family incomes. The results indicate extensive absolute poverty, but also the dependence of many families on a large informal or non-waged economy.

33. The pattern is the same at the national level but not so strong.

34. For the country as a whole, 81.7 percent of workers in "other" workplaces were men. The highest proportion of women was to be found in "home" workplaces (24.2 percent of all workers in such places).

35. See Alan Agresti, Categorical Data Analysis (New York 1990), 152 ff. We are indebted to Melanie Poulin-Costello for assisting us with the method and helping us to generate the results.

36. The variable dwelling type has 5 values, but we omit multiple-family households from the analysis. The remaining types are: primary-individual dwellings; single-parent dwellings; married couples without children; married couples with children; and extended.