Notes de recherche — Research Notes

Using the 1871 Census Manuscript Industrial Schedules: A Machine-Readable Source for Social Historians

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A major project, which is making accessible the complete unpublished data of the 1871 manuscript census for Ontario urban centres, is outlined. Applications of likely interest to social historians are suggested, including the possibility of determining the economic base for individual communities and the ability to see specific places in a comparative context. These are discussed with reference to three highly industrialized communities in 1870: Hespeler, Carleton Place and Oshawa.

Un projet majeur, qui donne accès à la totalité des données non publiées du recensement manuscrit de 1871 pour les centres urbains de l'Ontario, est amorcé. On y suggère des applications qui peuvent intéresser les spécialistes de l'histoire sociale, incluant la possibilité de déterminer la base économique de chaque communauté et la capacité d'étudier un lien spécifique dans une perspective comparative. Ces applications sont discutées en se référant à trois communautés industralisées en 1870, Hespeler, Carleton Place et Oshawa.

Among the new sources available for Canadian social historians is a databank derived from manuscript schedules of industrial establishments recorded for the 1871 Census of Canada. During 1985-86, the first stage of a project to facilitate access to these data has been sheltered by the Department of Geography, University of Guelph. The work has been assisted by a grant from the Social Sciences and Humanities Research Council of Canada.

The manuscript schedules on industrial establishments, recently made available on microfilm as part of the whole 1871 manuscript census by the Public Archives, constitute a uniquely valuable source.[1] Although similar details were collected in the censuses of 1881, 1891, 1901 and 1911, none of the manuscript schedules for those years have survived. While the 1861 census manuscripts have survived, their format is much more awkward

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1. T.A. Hillman, *Catalogue of Census Returns on Microfilm, 1666-1881* (Ottawa: Public Archives of Canada, 1981).

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to use, the industrial details being scattered through the household schedules.[2] Moreover, the 1871 schedules contain a wealth of information which was not published at the time.

The 1871 census enumerators recorded the following details of activity in 1870 for each industrial enterprise they included:

* Name of proprietor(s)
* Statement of type of establishment/nature of product
* Values of fixed and floating (working) capital
* Number of working months in the year
* Average numbers employed, distinguished into males and females over 16 years, boys and girls under 16 years
* Motive power other than manual (water, steam, horse) with the nominal force stated in units of horsepower
* Quantities and values of specified raw materials
* Quantities and values of manufactured products.

Only a very limited amount of this material was published in the official census volumes of the 1870s. The industrial statistics were organized primarily by various industrial types which were defined pragmatically rather than systematically. Summary data only were published for each of the 206 census districts (90 in Ontario); and no industrial data at all were published for smaller areal units.

Since the 1871 manuscript schedules were first released in the early 1970s, several scholars have examined them to support studies of particular cities, districts or industrial types. Gregory Kealey, for example, used the Toronto data to provide a context for his study of industrial workers.[3] The York Social History Project, directed by Michael Katz, coded data for industrial establishments in Hamilton, as part of its analysis of industrial capitalism in that city.[4] L.D. McCann has used the industrial schedules for Halifax-Dartmouth and for Pictou County, together with Dun credit ratings.[5] Eve Martel reconstituted the general patterns of industry on Montreal,[6] and Joanne Burgess the organization of the shoe-making industry there.[7] Paul Craven and Tom Traves have drawn on census manuscript data for evidence of industrial activity in railway workshops and yards;[8] Jim Burant has featured the photographic studios of Saint John,[9] and Ian McKay the confectionery and baking industry of Halifax.[10]

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2. A.A. Brookes, "Doing the Best I Can: The Taking of the 1861 New Brunswick Census", *Histoire sociale* IX (novembre-November 1976), 73-77.

3. G.S. Kealey, *Toronto Workers Respond to Industrial Capitalism* (Toronto: University of Toronto Press, 1980).

4. M.B. Katz, M.J. Doucet, and M.J. Stern, *The Social Organization of Early Industrial Capitalism* (Cambridge: Harvard University Press, 1982).

5. L.D. McCann, "The Mercantile-Industrial Transition in the Metals Towns of Pictou County, 1857-1931", *Acadiensis* 10, 2 (1981): 29-64.

6. E. Martel, "L'industrie à Montréal en 1871" (M.A. Thesis, Université du Québec à Montréal, 1978).

7. J. Burgess, "L'industrie de la chaussure", *Revue d'histoire de l'Amérique française* 31 (1977): 187-210.

8. P. Craven and T. Traves, "Canadian Railways as Manufacturers, 1850-1880", *Canadian Historical Association Historical Papers* (1983): 254-81.

9. J. Burant, "A Written Portrait: Saint John Photographers and Their Studios in the 1871 Census", *Archivaria* 17 (1983-84): 275-77.

10. I. McKay, "Capital and Labour in the Halifax Baking and Confectionary Industry During the Last Half of the Nineteenth Century", *Labour/Le Travail* 3 (1978): 63-108.

However, these uses of the 1870 data have been specific to each researcher's limited purpose. They have used different systems of classification, so that comparisons with other places or industrial sectors or with later periods are almost impossible. Very few of these users have transformed the data into machine-readable form, and those who have done so have been unconcerned about making their records accessible to other researchers. Scholars interested only in one category or sector of industrial activity may be daunted by the time-consuming labour of searching through the microfilmed schedules for a handful of establishments, and could easily miss some which were slightly misplaced in storage or the microfilming process.

The project reported here is making the unpublished data for industrial establishments accessible, in systematic, standardized and machine-readable format, to serve the research interests of economic, business, urban and social historians, historical geographers, industrial archaeologists and historians of material culture and technology. By coding individual establishments within the framework of census districts, sub-districts and enumerators' divisions, by classifying each according to the Standard Industrial Classification, and by the use of computer methods, we can achieve accuracy, consistency, comparability, retrievability and aggregation.

In the first major phase of the work, the manuscript details for all the 6,821 industrial establishments in 146 urban or proto-urban centres of Ontario have been made machine-readable.[11] These establishments constitute 31 percent of all reported for Ontario in 1871, but 58 percent of the total industrial employment and 62 percent of total value of production in the province. They also represent 20 percent of all industrial establishments reported for the four Canadian provinces included in the 1871 census, but 28 percent of total industrial employment and 33 percent of the total value of industrial production.

Details for all industrial establishments located within Ontario urban and proto-urban centres were read from the microfilmed manuscript schedules. All data, except for volumes of raw materials and or products, were coded in preparation for data entry. It was decided to exclude volume data in this first phase, because of the extreme variety of materials and units of measurement, and because these data were not recorded for many establishments. A Standard Industrial Classification code was added for each establishment, as well as location details of town name, census district name and census enumerator's division. In the early stages of the project, details were coded for data entry by keypunch operators to the mainframe computer. Procedures were later adapted, when an IBM-AT microcomputer was acquired for the project.

Intensive procedures were developed for verifying the basic data and for editing the database so that it is suitable for statistical analysis, for indexing, search and retrieval, for online transmission or copying on diskette to other users, and for printing in hard copy. Particular attention was paid to the accuracy and consistency of the SIC designations and to verifying the numeric data for capital, employment, wages, raw materials and value of production. Proprietors' names and types of establishment/product were also checked

11. In 1870, there were 110 incorporated cities, towns and villages in Ontario. We were interested also in another 40 "proto-urban" centres which would become municipally incorporated by 1900 and were of sufficient industrial significance to be included in another of our databanks, the Industrial Time-Series. Contemporary directories, county atlases and R.G. Dun reference books were used to determine which establishments should be included in each "proto-urban" place. Four of the centres were found to have come into existence after the taking of the 1871 Census, so 36 "proto-urban" places were finally included in the databank.

against lists in the Dun reference books, directories and historical atlases. In cases where the census enumerator's spelling of the proprietor's name differed significantly from that in a contemporary printed source, while clearly referring to the same establishment, the record was "corrected" if this would result in a more plausible or conventional rendering of the name.

Every record now has the following fields in a base III file structure:

Structure of URBIND71.dbf

Field	Field Name	Type	Width	Meaning
1	TOWNID	Character	3	ID code for city/town/village
2	CED	Character	3	Census enumerator's division
3	ESTNUM	Character	3	Establmnt no — MS sequence
4	PROPRIOR	Character	20	Name(s) of proprietor(s)
5	TYPEST	Character	20	Type of establmnt/product
6	MONTHS	Character	2	No. of working mos in year
7	SIC	Character	11	Standard Industrial Classif. Code
8	TYPEPOW	Character	5	Type of motive power (other than manual)
9	FORCE	Numeric	3	Nominal power (HP)
10	FIXCAP	Numeric	7	Fixed capital ($)
11	FLOCAP	Numeric	7	Floating capital ($)
12	EMPMEN	Numeric	3	Number men employed
13	EMPWOM	Numeric	3	Number women employed
14	EMPBOY	Numeric	3	Number boys employed
15	EMPGIRL	Numeric	3	Number girls employed
16	WAGES	Numeric	7	Total wages ($)
17	RAWMAT	Numeric	7	Cost of raw materials ($)
18	PRODUCTS	Numeric	7	Value of production ($)
19	TOTEMP	Numeric	3	Total number of employees
20	TOWNNAME	Character	15	Full name city/town/village
21	CDISTRIC	Character	23	Full name of census district
22	CDID	Character	4	ID code for census district
TOTAL			163	

The project procedures now enable data for any establishment to be retrieved easily; details for groups of establishments may also be aggregated by geographical unit or industrial type. Both potentialities, which are likely to interest social historians, are illustrated in the tables accompanying this note.

The 1871 manuscript data capture the industrial structure for one year in a time of transition from artisanal craftshops to factories. The aggregate patterns and processes which are emerging from analysis of the databank can provide a comparative context for detailed study of individual communities. Industrial activity mattered more to some urban centres than to others, whether measured in absolute or relative terms, and the particular mix of industrial types also varied considerably from place to place. The fine detail available for all establishments may be a valuable source in interpreting the social structure and relationships of particular communities.

"Hives of industry" was a phrase used with pride by many Ontario towns and villages in the late nineteenth century. Some urban centres in 1870 were clearly dominated by industrial activity. Table 1 lists the 34 urban centres of Ontario in which industrial activity was most significant, measured by the variable PERCENT, the percentage of the total town

population which was employed in industrial establishments. All the towns in this table had at least 100 industrial workers and a PERCENT value above the mean for all Ontario towns; they are listed in the table according to this variable. The highest PERCENT values characterized quite small urban centres, the top seven places with PERCENT values of at least 25 percent each having less than 2,500 total population. But highly industrialized places were found at all levels of the urban hierarchy: the list includes Toronto and Hamilton, the only Ontario cities with over 25,000 population in 1871, as well as three of the seven towns with 5,000 to 10,000 population (St Catharines, Guelph and Brantford) and six of the twenty-four towns with 2,500 to 5,000 population (Oshawa, Dundas, Galt, Peterborough, Ingersoll and Paris). Fifteen of the sixty urban or proto-urban centres with 1,000 to 2,500 population are included in this list, and eight of the forty-eight places with under 1,000 people. Notable exceptions are Ottawa, London and Kingston, the three cities with populations of between 10,000 and 25,000.[12]

Data of population, number of establishments, number of employees, and values of fixed capital, wages, raw materials, and production are also presented for each urban centre. The average yearly industrial wage, stated in the AVWAGE column, varied considerably around a mean for all Ontario towns of $260, ranging from a high of $408 in Petrolia to a low of $167 in Deseronto. The variable PRIMEMP (primary employer) refers to the number of workers employed by the largest enterprise in each town: over one-third of each community's industrial labour force worked in the largest establishment in Deseronto, Merritton, Hespeler, Carleton Place, Almonte, Garden Island, Oshawa, Lanark, Hawkesbury, Mitchell and Trenton.

Tables 2, 3 and 4 list all the establishments in three Ontario towns where industrial activity was significant but took somewhat different forms. They are included and briefly discussed to suggest some of the databank's potential value for social history. In each case, the 1870 source offers only a synoptic slice through a continuous process of industrial and social development. But it also provides a benchmark from which subsequent growth and change may be measured, as well as clues to important elements in the community's economic base which might become more significant later. Both factory and craft enterprises are represented in each place, but the relative weighting of each varies. Details of the industrial standing of particular entrepreneurs may be used in prosopographical studies of élite status and community leadership, while the phenomenon of what was colloquially known as "hiving-off" may be observed in the proliferation of enterprises where the proprietors and/or business partners have the family names. The availability of work for women and girls, the seasonality of employment in the industrial sectors dominating particular communities, and the variations in average wages for industrial sectors or whole communities have potential interest for social historians.

Hespeler was the quintessential mill town, dominated by three woolen textile mills which ranked second, fifth and twentieth in value of production among all the woolen mills in Ontario urban centres in 1870. Other industrialized communities dominated by textile mills were Almonte where the enormous Rosamond woolen mill employed 209 of the town's 553 workers,[13] and Merritton where the Lybster cotton mills had 200 of the village's

12. E. Bloomfield and G. Bloomfield, with P. McCaskell, *Urban Growth and Local Services: The Development of Ontario Municipalities to 1981* (Guelph: Department of Geography, University of Guelph, 1983).

13. R. Reid, "The Rosamond Woolen Company of Almonte: Industrial Development in a Rural Setting," *Ontario History* LXXV (September 1983): 266-89.

Table 1 **Ontario urban centres with at least 100 industrial workers and above average industrial significance**

TOWN NAME	POP	ESTAB	CAPITAL	EMPLOY	WAGES	RAWMAT	PRODUCTS	PERCENT	AVWAGE	PRIMEMP
DESERONTO*	500	6	64,300	349	58,310	97,615	196,554	69.8	167.08	311
MERRITTON*	1,000	10	373,500	429	96,136	264,060	596,917	42.9	224.09	200
HESPELER	797	22	145,655	266	62,025	264,612	431,303	33.4	233.18	163
SMITHS FALLS	1,150	43	135,425	328	93,241	238,186	463,668	28.5	284.27	74
CARLETON PLACE	1,205	31	104,350	333	76,756	212,975	357,801	27.6	230.50	163
ALMONTE	2,080	46	326,051	553	125,708	438,423	645,050	26.6	227.32	209
GARDEN ISLAND	762	2	0	195	50,000	38,000	180,000	25.6	256.41	156
OSHAWA	3,185	41	379,450	732	259,350	612,776	1,095,780	23.0	354.30	266
PORT PERRY*	1,500	31	90,500	335	74,810	104,297	246,405	22.3	223.31	55
GEORGETOWN	1,282	35	107,150	283	64,818	256,300	386,318	22.1	229.04	70
DUNDAS	3,135	64	495,430	682	182,575	461,824	882,477	21.7	267.70	143
GALT	3,827	74	395,726	796	226,843	663,293	1,217,110	20.8	285.00	203
GANANOQUE	2,020	49	200,900	419	113,760	280,135	604,170	20.7	271.50	66
MERRICKVILLE	923	32	76,175	187	45,637	135,905	199,439	20.2	244.05	38
LANARK	740	38	70,622	148	30,550	109,350	177,242	20.0	206.42	50
ST CATHARINES	7,864	158	506,352	1,416	425,052	1,731,661	2,584,700	18.0	300.18	120
HAWKESBURY	1,671	39	145,150	301	53,590	487,224	673,405	18.0	178.04	168
SEAFORTH	1,368	48	129,100	246	55,296	207,737	349,160	18.0	224.78	40
HAMILTON	26,716	326	1,578,164	4,785	1,375,611	2,900,141	5,634,044	17.9	287.48	455
NEWCASTLE	1,109	30	36,650	194	44,721	102,485	253,535	17.5	230.52	61
PRESTON	1,408	52	150,396	245	52,080	242,480	404,388	17.4	212.57	67
CALEDONIA	1,246	42	69,102	216	61,993	87,031	188,810	17.3	287.00	37
TORONTO	56,092	542	4,428,650	9,653	2,696,531	7,098,197	14,544,699	17.2	279.35	510
FERGUS	1,666	42	151,210	281	85,128	309,960	511,402	16.9	302.95	75
PETERBOROUGH	4,611	96	311,595	759	214,282	397,949	775,095	16.5	282.32	150
GUELPH	6,878	109	486,715	1,131	376,487	1,057,379	1,901,500	16.4	332.88	180
ACTON*	700	23	77,900	115	34,402	107,431	179,517	16.4	299.15	21
LISTOWEL	976	35	82,650	157	29,178	77,878	131,405	16.1	185.85	25
INGERSOLL	4,022	69	314,090	627	194,917	523,194	856,212	15.6	310.87	103
BRANTFORD	8,107	98	794,295	1,258	424,602	916,309	1,835,577	15.5	337.52	315

Table 1 (cont.) **Ontario urban centres with at least 100 industrial workers and above average industrial significance**

TOWN NAME	POP	ESTAB	CAPITAL	EMPLOY	WAGES	RAWMAT	PRODUCTS	PERCENT	AVWAGE	PRIMEMP
PARIS	2,640	45	186,120	410	108,120	547,082	844,367	15.5	263.71	75
MITCHELL	1,802	38	96,210	279	75,946	207,129	366,565	15.5	272.21	106
IROQUOIS	781	31	57,150	120	27,756	55,219	108,330	15.4	231.00	17
TRENTON	1,796	34	78,247	270	66,472	189,553	302,163	15.0	246.19	170
TOTAL	155,559	2,381	12,644,980	28,498	7,962,683	21,423,790	40,125,108			4,862

* Unincorporated centre

PERCENT Industrial workers percent total town population
AVWAGE Mean industrial wage in town
PRIMEMP Size of workforce of largest employer.

Source: URBIND71 databank, compiled from 1871 manuscript census schedules.

Table 2 **Hespeler establishments, 1870; ranked by size of work force**

PROPRIETOR	TYPE ESTABLISHMENT	SIC CODE	MO POWER	FORCE	FIXCAP	FLOCAP	MEN	WOM	BOY	GIRL	TOTEMP	WAGES	RAWMAT	PRODUCTS
RANDALL, FARR & CO	WORSTED/WOOLEN MILL	182	12 WATER	100	77,000	175,000	45	44	17	57	163	35,000	140,000	200,000
FORBES & SCHOFIELD	WOOLEN MILL	182	12 STEAM	18	16,000	8,000	8	14	2	2	26	7,000	21,000	30,000
FARR/LONG/BISBY	WORSTED FCY	182	12 STEAM	30	8,000	50,000	12	8	1	0	21	8,000	70,000	100,000
HESPELER, GEORGE	DISTILLERY	109-D	6 STEAM	30	22,500	30,000	15	0	0	0	15	3,000	15,000	54,760
KARCH, CHARLES	FOUNDRY	294	12 STEAM	8	3,000	1,500	7	0	0	0	7	1,500	1,450	4,000
HESPELER, GEORGE	FLOUR MILL	105	6 WATER	200	7,500	23,750	6	0	0	0	6	1,000	5,000	11,110
KRIBS, LEWIS	SAW/SHINGLE MILL	251/251-S	12 STEAM	25	3,500	4,000	5	0	0	0	5	1,300	4,000	7,525
NOBLE, TENA	MILLINERY/DRESSES	249-M/244	12	0	700	0	0	2	0	2	4	200	800	1,200
KRIBS, LEWIS	COOPER	259-C	12	0	500	2,500	4	0	0	0	4	1,210	400	2,400
JOHNSTON, JAMES P	BLACKSMITH	896	12	0	900	1,120	2	0	0	0	2	550	500	1,680
PABST, CHRISTIAN	LIME KILN	358-L	4	0	80	15	2	0	0	0	2	200	40	350
JARDINE, ANDREW	MACHINE SHOP	308	12 STEAM	5	1,300	300	2	0	0	0	2	875	95	1,400
BOLDUC, GEORGE	BOOTS & SHOES	174	12	0	500	0	1	0	0	0	1	260	1,476	2,500
MARTIN, GEORGE	HARNESS	179-S	12	0	400	100	1	0	0	0	1	85	735	1,800
BALZER, JACOB	TAILOR/MEN'S	243	12	0	1,000	0	1	0	0	0	1	200	900	4,000
LLOYD, JOHN	TINSMITH	304-T	12	0	250	0	1	0	0	0	1	135	500	1,500
WINTERHALT, HENRY	BOOTS & SHOES	174	12	0	200	60	1	0	0	0	1	270	1,800	2,700
WRAY & HIRST	BLACKSMITHS	896	12	0	300	860	1	0	0	0	1	450	366	1,200
ANDERSON, JAMES	WAGON/CARRIAGE FCY	329-W/329-C	12	0	1,620	800	1	0	0	0	1	500	300	2,525
HUETHER, LUDWIG	FLACKSMITH	896	12	0	280	180	1	0	0	0	1	200	150	400
ALLENDORF, GEORGE	WEAVER	182-W	12	0	100	60	1	0	0	0	1	50	75	125
BERGE, ELIAS	BOOTS & SHOES	174	3	0	25	5	0	0	0	0	0	40	25	128
TOTAL				416	145,655	298,250	117	68	20	61	266	62,025	264,612	431,303

Source: URBIND71 databank, compiled from 1871 manuscript census schedules.

Table 3 **Carleton Place establishments, ranked by size of work force**

PROPRIETOR	TYPE ESTABLISHMENT	SIC CODE	MO POWER	FORCE	FIXCAP	FLOCAP	MEN	WOM	BOY	GIRL	TOTEMP	WAGES	RAWMAT	PRODUCTS
GILLIES & MCLAREN	SAW MILL	251	7 WATER	110	20,000	37,000	150	3	10	0	163	35,000	75,000	120,000
CALDWELL, BOYD	SAW MILL	251	7 STEAM	135	40,000	10,000	40	0	0	0	40	8,400	62,500	100,000
GILLIES, J & J	SHINGLES	251-S	7 WATER	10	3,000	5,000	8	0	16	0	24	4,000	6,000	10,000
MCDONALD, BETTY	WOOLEN FCY	182	12 WATER	30	4,000	2,000	6	7	0	0	13	5,460	13,500	30,000
GALVIN, PATRICK	TAILOR	242	12	0	1,500	0	2	6	0	0	8	750	2,500	4,000
CRAM, JOHN	TANNERY	172	12 WATER	8	3,400	2,500	7	0	0	0	7	1,896	16,800	20,096
POOLE, JAMES	PRINTER/PUBLISHER	289	12 STEAM	4	4,000	1,000	4	0	2	0	6	800	1,600	4,000
SINCLAIR, COLIN	TAILOR	242	12	0	800	400	1	5	0	0	6	718	3,000	4,715
CRAM, JOSEPH	SASH/DOOR/PLANING	254	12 WATER	10	1,500	200	6	0	0	0	6	2,496	2,000	5,000
PATTERSON, WILLIAM	CABINETS	261	12	0	600	400	6	0	0	0	6	1,250	1,200	3,600
BOND, JOSEPH	TINSMITH	304-T	12	0	1,100	1,000	5	0	0	0	5	1,110	1,500	3,000
WALKER, ANDREW	TAILOR	242	12	0	100	200	2	3	0	0	5	0	1,600	2,700
GLOVER, WILLIAM	BLACKSMITH	896	12	0	300	200	4	0	0	0	4	1,000	3,700	6,000
RONISON, WILLIAM	CARPENTER	421-C	12	0	500	200	4	0	0	0	4	1,500	1,200	3,000
BENNET, EDWARD	BLACKSMITH	896	12	0	500	100	3	0	0	0	3	800	600	2,000
TAYLOR, WILLIAM	TINSMITH	304-T	12	0	600	300	3	0	0	0	3	700	1,400	1,800
WAUGH, ANDREW	SADDLERY	179-S	12	0	100	0	3	0	0	0	3	900	1,200	2,000
CALDWELL & BROWN	FLOUR MILL	105	12 WATER	40	16,000	4,000	3	0	0	0	3	1,400	10,000	15,000
WAUGH, SAMUEL	SADDLERY	179-S	12	0	400	100	3	0	0	0	3	912	1,200	2,700
LANG, GEORGE	CARRIAGES	329-C	12	0	250	100	2	0	0	0	2	950	300	1,300
BARRIE, PETER	BOOTS & SHOES	174	12	0	150	100	2	0	0	0	2	712	400	1,600
HUNTER, ALEXANDER	BLACKSMITH	896	12	0	300	100	2	0	0	0	2	900	600	1,560
BURK, MORRIS	COOPER	259-C	12	0	300	50	2	0	0	0	2	936	200	1,500
TUCKER, PATRICK	BOOTS & SHOES	174	12	0	600	150	2	0	0	0	2	600	1,000	1,850
MCNEELEY, BRYCE	TANNERY	172	12	0	1,500	1,000	2	0	0	0	2	666	1,575	2,480
MOORE, HUGH	TAILOR	242	12	0	200	0	1	1	0	0	2	300	100	400
FINDLEY, DAVID	IRON FOUNDRY	294	12 STEAM	10	1,000	100	2	0	0	0	2	800	900	3,000
MOORE, WILLIAM	BOOTS & SHOES	174	12	0	500	100	1	1	0	0	2	500	800	2,000
GRAHAM, JOHN	WAGONS	329-C	12	0	1,000	500	1	0	0	0	1	500	200	1,200
MOORE, RICHARD	BOOTS & SHOES	174	12	0	50	0	1	0	0	0	1	400	200	650
PELLARD, JOSEPH	WAGONS	329-W	12	0	100	50	1	0	0	0	1	400	200	650
TOTAL				357	104,350	66,850	279	26	28	0	333	76,756	212,975	357,801

Source: URBIND71 databank, compiled from 1871 manuscript census schedules.

Table 4 **Oshawa establishments, ranked by size of work force**

PROPRIETOR	TYPE ESTABLISHMENT	SIC CODE	MO POWER	FORCE	FIXCAP	FLOCAP	MEN	WOM	BOY	GIRL	TOTEMP	WAGES	RAWMAT	PRODUCTS
HALL, JOSEPH	ENGINES/AGRC IMPL	315-E/311	12 STEAM	50	200,000	250,000	250	0	16	0	266	125,000	56,600	300,000
GIBBS, WM H	CABINETS	261	12 STEAM	50	60,000	120,000	160	15	6	0	181	55,000	100,000	165,000
SMITH, R & A	TAILOR/MILLINER	243/249-M	12	0	250	5,000	8	16	0	0	24	5,300	10,000	19,000
LUKE & BROTHER	CABINETS	261	12 STEAM	25	8,000	7,000	19	0	1	0	20	5,000	5,750	16,000
GIBBS & GIBBS	FLOUR MILL	105	12 WATER	70	60,000	20,0000	20	0	0	0	20	6,000	300,000	325,000
CHISHOLM, ALEX M	TAILOR/MILLINER	243/249-M	12	0	200	3,000	6	12	0	1	19	3,500	8,000	16,350
WARREN, WILLIAM	TANNERY	172	12 STEAM	16	4,000	8,000	16	0	0	0	16	6,000	25,000	36,000
WALL, PATRICK	COOPER	259-C	10 STEAM	10	7,000	15,000	12	0	4	0	16	3,500	3,100	10,500
WILSON, JOHN SR	BRICK/TILE YARD	351-B	6 HORSE	4	2,100	800	7	0	5	0	12	1,400	300	2,800
DINGLE, THOS	CARPENTER/BUILDER	421-C/421-B	12 STEAM	15	5,000	12,000	12	0	0	0	12	6,000	14,000	30,000
MCGREGOR & PELLOW	SHEEP TANNERY	172	8	0	3,000	5,000	10	0	1	0	11	3,000	18,000	22,000
ROBSON & LAUGHLAND	TANNERY	172	12 WATER	12	3,000	18,000	11	0	0	0	11	3,300	20,000	38,000
PEDLAR, GEORGE	TINWARE/CHEESE VATS	304-T	12	0	2,000	6,000	8	0	0	0	8	2,500	2,000	7,500
LUKE & LARK	PRINTING/VINDICATOR	286/289	12	0	5,000	0	8	0	0	0	8	2,500	1,500	5,000
DICKIE, WILLIAM	TAILOR	242	12	0	0	9,000	3	5	0	0	8	1,450	5,000	9,000
HAWTHORNE, THOS G	BOOTS & SHOES	174	12	0	0	5,000	5	1	1	0	7	1,500	5,000	7,000
SYKES, JOHN	PLANING/SASH/DOORS	254	12 STEAM	15	2,000	2,500	6	0	1	0	7	4,000	8,500	15,000
WESTERN, M & SON	COOPER	259-C	12	0	1,000	0	6	0	0	0	6	900	1,360	2,970
FOWKE, W J	BRICK YARD	351-B	6	0	200	800	4	0	2	0	6	750	200	2,000
STEPHENSON, WM	CARPENTRY	421-C	12 HORSE	1	1,000	1,000	6	0	0	0	6	3,000	4,310	8,000
TREWIN, SAMUEL	MILLINERY	249-M	12	0	0	2,000	0	5	0	1	6	750	4,000	5,700
PRUDHAM, LOUIS	BOOTS & SHOES	174	12	0	0	3,000	5	0	1	0	6	1,500	2,000	4,500
WILKINSON, H	BOOTS & SHOES	174	12	0	2,000	0	6	0	0	0	6	1,600	3,000	5,000
RIGGS, JAMES	TAILOR	242	12	0	2,000	2,500	2	4	0	0	6	2,600	2,000	6,000
OREGAN, JOHN	COOPER	259-C	10	0	800	2,000	6	0	0	0	6	1,800	1,700	3,700
BAMBRIDGE, WILLIAM	CARRIAGE/BLACKSMITH	329-C/896	12	0	1,500	2,000	6	0	0	0	6	2,000	1,100	6,000
COWAN, T W	TAILOR	242	12	0	3,000	1,000	1	3	0	0	4	1,200	4,000	6,000
SHORTT, JOSEPH	SADDLERY	179-S	12	0	400	300	3	0	0	0	3	800	516	1,300
HONEY, CHARLES	BOX FCY	256	12 STEAM	6	800	100	1	0	2	0	3	600	700	1,600
WOOD, SAMUEL	TAILOR	243	9	0	600	0	1	2	0	0	3	800	1,000	2,000
GURLEY, GEO	TAILOR	242	12	0	0	1,600	1	2	0	0	3	700	1,600	2,200
CRAIG, JOSEPH	CARRIAGE/WAGON	329-C/329-W	12	0	2,000	2,500	3	0	0	0	3	1,600	800	7,800

Table 4 (cont.) **Oshawa establishments, ranked by size of work force**

PROPRIETOR	TYPE ESTABLISHMENT	SIC CODE	MO POWER	FORCE	FIXCAP	FLOCAP	MEN	WOM	BOY	GIRL	TOTEMP	WAGES	RAWMAT	PRODUCTS
BAKER, ELIJAH	TAILOR	242	12	0	500	500	1	1	0	0	2	500	500	1,000
ERVING, JOHN	BLACKSMITH	896	12	0	0	200	2	0	0	0	2	300	250	900
HILLMAN, SAMUEL	CARRIAGE SHOP	329-C	6	0	200	400	2	0	0	0	2	200	70	825
WIGG & SON	CABINETS/UNDERTAKER	261/877	12	0	1,200	300	2	0	0	0	2	800	150	1,100
HAWKINS, JOSEPH	BLACKSMITH	896	12	0	100	200	1	0	0	0	1	300	50	400
THORNTON, JOHN	BOOTS & SHOES	174	12	0	200	150	1	0	0	0	1	400	70	485
KIRKPATRICK, MATHEW	BOOTS & SHOES	174	12	0	100	150	1	0	0	0	1	500	100	600
KIRKPATRICK	PUMP MAKER	315-P	12	0	0	0	1	0	0	0	1	300	100	600
LEDDICOTT, SAMUEL	BOOTS & SHOES	174	12	0	300	600	1	0	0	0	1	500	450	950
TOTAL				274	379450	687600	624	66	40	2	732	259350	612776	1095780

Source: URBIND71 databank, compiled from 1871 manuscript census schedules.

429 workers.[14] Incorporated in 1858, after an earlier existence as the hamlet of New Hope, Hespeler had a total population of just under 800. The village was named for Jacob Hespeler whose distillery and flour mill (1847) had been the first significant enterprises to harness the abundant local water power of the Speed River. He had also built the first woolen mill (1862), which was destroyed by fire in 1869.[15]

Hespeler's seven larger powered establishments, each employing at least five workers, may be readily distinguished from the smaller craft shops. The Karch foundry (1860) and Kribs saw/shingle mill (1865) were well established but dwarfed by the textile enterprises. Robert Forbes and Jonathan Schofield opened their mill only in early 1870, on the site of an earlier tannery, with 24 narrow looms, woolen cards and spinning equipment. Barter was part of their operation, tweeds, flannels, blankets, druggets and knitting yarns being exchanged with farmers for wood and raw wool.[16] George and Shubel Randall and their cousin Herbert Farr (who was Jacob Hespeler's son-in-law) had come to southern Ontario from New England as railway contractors during the boom of the 1850s. Their mill cost about $100,000 to build in 1864, and specialized in alpaca linings.[17] The Farr, Long and Bisby factory, listed in the 1871 industrial schedules, is not mentioned in local history sources; it may well have been a steam-powered adjunct of the main mill, specializing in worsteds. In 1874, Farr decided to move his operations to Holyoke, Massachusetts, taking many of his skilled Hespeler workers with him. Forbes and Schofield took over the vacant Randall-Farr mill in 1874, beginning a process of expansion which continued to the 1920s, though Schofield left Hespeler to establish a woolen mill in Oshawa in 1880.

The case of Hespeler illustrates job opportunities for women in the textile industry. Female workers outnumbered males in two of the three woolen mills, and comprised 48.5 percent of the village's total industrial workforce. In no other Ontario urban centre did female workers form such a large proportion of the total; the next largest were also in textile centres — Merritton (41.4 percent), New Edinburgh (39.8 percent), Almonte (39.8 percent), and Dundas (30.5 percent). Predictably, Hespeler's average wage was lower than the mean for all Ontario urban places, but a little higher than the other textile towns and villages. Hespeler would be an excellent place in which to study the social history of a mill village, perhaps pursuing the New England connections.[18]

Carleton Place represents a significant type of Ontario community dominated by the wood products industry. Its two largest enterprises were saw mills, and its other powered establishments included a shingle mill and a sash, door and planing mill. The Gillies and McLaren and Boyd Caldwell mills ranked twelfth and fourteenth among urban saw mills in Ontario in 1871. Other urban centres dominated by the wood products industry included

14. Cornwall might also have qualified, but the large woolen mill with 145 workers and an output worth $200,000 in 1870 had just been built outside the town boundaries, as others would be during the 1870s. E.K. Senior, *From Royal Township to Industrial City: Cornwall, 1784-1984* (Belleville: Mika Publishing Company, 1983): pp. 266-89.

15. D.N. Panabaker, "Pioneer Woollen Mills in Preston, Hespeler and Vicinity", *Waterloo Historical Society Annual Volume* 21 (1933): 45-52: D.N. Panabaker, "The Town of Hespeler", *Waterloo Historical Society Annual Volume* 60 (1972): 36-49.

16. Panabaker, "Pioneer Woollen Mills", p. 51.

17. Panabaker, "Town of Hespeler", pp. 44-45.

18. The social history of Hespeler might be compared with New England mill-towns such as Lowell and Manchester, which have been portrayed in such classic studies as T. Hareven and R. Langenbach, *Amoskeag: Life and Work in an American Factory-City* (New York: Random House, 1978).

Hawkesbury (where Hamilton Bros mill employed 168 of the 301 industrial workers), Trenton (where the 170 of the town's 270 workers were at the Gilmour mill), Deseronto (where 311 of 349 worked for the Rathbun establishments), Collingwood (where 133 of 327 worked for Hotchkiss and Peckham) and Arnprior (where 100 of 190 worked for the McLaughlin Brothers). Ottawa had six large saw mills, those of Bronson, Weston & Co., Walter Perley, A.H. Baldwin, James Booth, Levi Young and J. McLaren & Co, which together employed 1,177 male workers of the city's total industrial labour force of 3,210.

As in other saw milling communities, Carleton Place's workers were predominantly male (92 percent). The seasonality of the industry may be noted, the saw and shingle mills working for only seven months of the year. Wage variations were significant, the men in Caldwell's saw mill making only $30 a month during the seven-month season, while those in Cram's sash and door mill averaged $35 per month for the full year. Wages in the village's iron-working, carriage-making and flour-milling establishments were higher, at an average $39 to $40 per month.

The values of fixed capital investment provide some clues to the community leaders, those who had a stake in the town or village and who usually played a large role in municipal government. One may also observe the phenomenon of established enterprises "hiving off" new ones, in the same or related sectors, such as the Gillies saw and shingle mills, the Caldwell flour mill and saw mill, the Cram tannery and sash and door mill.

Carleton Place would not remain so dependent on the wood products industry. Only just incorporated as a village in 1870 with 1,205 population, it more than doubled its population to become a town in 1890. A woolen and carding mill with 70 workers was started by William Wylie in 1870, and the Central Canada Machine Works by John Gillies in 1875.[19]

Oshawa in 1870 was larger and more complex than either Hespeler or Carleton Place, though almost as highly industrialized. It was the only urban centre in Ontario with more than 2,500 population and over 20 percent active in industry. Oshawa was not dominated by a single enterprise or sector, but 61 percent of its industrial workers were employed in two enterprises — 266 in the Joseph Hall engine and implement works and 181 in William Gibbs's Oshawa cabinets factory. Both enterprises made more highly fabricated products and employed more skilled labour, reflected in the higher average wages of Oshawa establishments generally. The Joseph Hall workers averaged $470 a year, while the average industrial wage for Oshawa as a whole ($354.30) was the highest of any town in Table 1, being most nearly approached by Brantford ($337.52) and Guelph ($332.88), which also had strong machinery and transportation sectors. Oshawa's industrial structure offered few jobs to women and girls, and its labour force was 90.7 percent male.

The Joseph Hall works ranked among the largest such establishments in Ontario, though no others were recorded as combining the production of engines (portable and railway) and boilers, mill machinery, printing presses, and turbine water wheels with agricultural implements. Altogether Hall's was larger, in value of production and in employment, than any of Ontario's specialized engine-making enterprises, such as Neil Dickey & Co. of Toronto, Goldie, McCullough & Co. of Galt, C.H. Waterous & Co. of Brantford,

19. H. Belden & Co, *Illustrated Atlas of Lanark County, 1880* (reprint edition by Ross Cumming, Port Elgin, 1972), pp. 20-21. See also H.M. Brown, *Founded Upon a Rock: Carleton Place Recollections* (Carleton Place: 150th Year Festival Committee, 1969).

and F.G. Beckett & Co. of Hamilton, all of which produced at least $100,000 worth of finished products in 1870, and employed at least 100 workers. It also greatly exceeded the six specialized manufacturers of agricultural implements in Ontario with over $100,000 worth of production in 1870: L.D. Sawyer & Co. of Hamilton ($125,000), John Abell ($119,000) and Patterson Bros ($113,650) of Vaughan Township, Haggert Brothers of Brampton ($103,500), Eastwood & Co. of Ingersoll ($101,000) and Whiting and Cowan, which produced $100,000 worth of scythes and hoes at the Cedar Dale Works in Whitby Township just outside Oshawa's municipal boundary.[20] It is noteworthy that the Joseph Hall Works had been established in 1857 as a branch plant of a parent enterprise from Rochester, N.Y. Managed by Hall's son-in-law, the Oshawa plant was staffed by experienced machinists from Clydeside shops and was at its peak in 1870. From the late 1870s, it would falter, and it finally failed in 1886.[21]

Oshawa's largest industrial establishment by value of production in 1870 was the Gibbs and Gibbs flour mill, which had been established and operated until 1865 by the Warrens. Employing only 20 men, it ranked fifth among all Ontario flour mills by value of production. At this period, the proprietor of a flour mill was a leading figure in any community, and members of the Gibbs family were influential in most aspects of Oshawa life. T.N. Gibbs and William H. Gibbs each served as reeve of the village council in the 1850s, and as warden of Ontario County. Both represented local ridings in Parliament, and T.N. Gibbs became a senator. W.H. Gibbs also invested in the cabinet-making business. Among the cabinet-makers of Ontario in 1870, his Oshawa Cabinets ranked second only to the R. Hay & Co. factory in Toronto, which employed 380 men and 50 boys and produced $500,000 worth of goods in 1870.

Oshawa's smaller enterprises gave the town some strength in the leather- and woodworking sectors, and in carriage-building. Some minor businesses would grow substantially after 1870: the Robson and Laughland tannery became Robson-Lang Leathers, and George Pedlar's making of kitchen utensils grew into The Pedlar People's sheet metal empire. Significant new businesses, which would eventually shape its twentieth-century character, were established in the town in the 1870s — Ontario Malleable Iron (1872), Oshawa Stove Works (1873) and, most momentous, the McLaughlin Carriage Company (1876).

Oshawa's strongly industrial character deserves more scholarly investigation. There is scope for a prosopographical analysis of community leaders and of the extent to which industrial entrepreneurs dominated the town economically, socially and politically. Can Oshawa's social structure be understood in terms of a series of industrial family dynasties — the Warrens, Gibbs and Cowans, succeeded by the Pedlars, Stories and McLaughlins — as the town's local historian, M.M. Hood, has suggested?[22] Oshawa seems also to have had a bias in favour of industry, offering bonuses and other inducements to attract or hold manufacturers, and rejoicing in the motto "Hustling City". The social basis of such an

20. The Massey Manufacturing Co., which would later become famous after it moved from Newcastle to Toronto in 1880, ranked seventh in Ontario in 1870 with a production value of $80,000.

21. M.M. Hood, *Oshawa: A History of Canada's Motor City* (Oshawa: McLaughlin Public Library Board, 1968), pp. 68-72. Oshawa's industrial history is well covered in this local history.

22. *Ibid.*, p. 81. For such an analysis, see also E. Bloomfield, "Community Leadership and Decision-Making: Entrepreneurial Elites in Two Ontario Towns, 1870-1930", in *Power and Place: Canadian Urban Development in the North American Context*, ed. G.A. Stelter and A.F.J. Artibise (Vancouver: University of British Columbia Press, 1986), pp. 82-104.

ethos and industrial policy would be worth exploring and comparing with that in other Ontario towns and cities.[23]

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In the next phase of the research project, we are taking two directions. One is to study the feasibility (including the financial cost) of extending the databank to include rural Ontario as well as the other three provinces enumerated in 1871, Quebec, New Brunswick and Nova Scotia. The other is to apply statistical analysis techniques to the records in the databank, in order to explore various questions in the history of Canadian social and economic development.

A report is available, describing the objectives and project procedures and outlining the research potential of the databank:

Elizabeth Bloomfield, Gerald Bloomfield and Janine Grant, with Peter McCaskell, *Industry in Ontario Urban Centres, 1870: Accessing the Manuscript Census (1986)*, 60 pp.

It may be ordered from Publications, Department of Geography, University of Guelph, Guelph, Ontario, N1G 2W1, for $7.00 (cheque with order, please). Enquiries and comments from prospective users of the databank are also welcomed.

23. The urban ethos and industrial policy of Berlin/ Kitchener, Ontario, which developed later than Oshawa, have been examined in E. Bloomfield, "Building the City on a Foundation of Factories: the 'Industrial Policy' in Berlin, Ontario, 1870-1914", *Ontario History* 75 (1983): 207-43.