

Historical Research Using Computer Files from the 1871 Census of Ontario

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Introduction

The Canadian manuscript decennial census returns, currently available up to and including those for 1891, are among the most commonly consulted and most useful of the nineteenth-century holdings of the National Archives of Canada (NA). Users fall into two broad categories. The first includes professional historians, academics and students reworking the material to produce statistical cross-tabulations that are not possible using the published statistical abstracts. The second group includes family history researchers and genealogists seeking biographical details about individuals. Since 1982, the NA and the Ontario Genealogical Society (OGS) have been cooperating in a joint effort to computerize an extensive run of data from the 1871 census returns for the province of Ontario. The aim of the project is to generate a series of products that will be of interest to both user markets. This paper will outline the origins of the OGS/NA 1871 Census Indexing Project, describe the database and illustrate how the data from the project can be used for secondary research analysis.¹

Early applications of computer technology for quantitative research have produced innovative studies reflecting a diversity of subjects, methodologies and sources. Within the Canadian context, Katz's² seminal study of Hamilton launched the first quantitative volley into Canadian history. Clarke, Brown, Brunger and other historical geographers, have quantitatively analysed various aspects of the settlement process in the development of Upper Canada.³ Other regionally-based works, such as Gagan's⁴ work on Peel County and Gaffield's⁵ analysis of the language controversy in Prescott-Russell counties, have provided new possibilities for a re-examination of traditional historical questions. Darroch and Ornstein's⁶ provincial population sampling has provided data for an analysis of cross-boundary patterns and trends. In Quebec, massive databases compiled by Bouchard, Charbonneau, Legare and their colleagues, cover broad spectrums of both time and space.⁷

At the Canadian Historical Association (CHA) annual meeting in 1988, scholars lamented the current state of quantitative historical research and the underdevelopment of historical databases in Canada.⁸ One commentator noted that "historical analyses

rooted in extensive, multivariate databases representing the routinely-generated records of large populations ... have not attracted, among anglophone historians at least, appreciable numbers of converts.”⁹ Indeed, the anticipated “revisionist history which requires a fundamental reassessment of the meaning of the Canadian past” has not emerged.¹⁰ Some earlier projects have provided the methodological tools, but even the ubiquity of the microcomputer has not brought about the anticipated quantitative historical revolution. This is, in part, the result of the time, labour and financial resources one must invest to produce large data files. Furthermore, when created to facilitate particular research, these files frequently remain inaccessible for other projects.

Genealogists are the other main users of census records. The OGS was founded in 1961. Family history research received a major impetus from the heritage consciousness inspired by the Canadian centenary in 1967. The OGS in 1991 has twenty-six branches and more than 5,000 members, and its quarterly periodical, *Families*, is one of the widest circulating historical magazines in Canada. While the genealogist’s focus is intensely personal, family historians have devoted countless hours of volunteer labour to making historical records containing the names of individuals more accessible. These efforts have resulted in the publication of a vast array of source materials, often with limited or local circulation. These efforts have also led to the preparation of a large number of indexes of various kinds. Materials that have been indexed include newspaper notices, parish registers, gravestone inscriptions, marriage licence bonds, wills, land records, assessment rolls, county atlases and census records. Many of these indexes have been published; others have been deposited in local libraries or archives, or are retained by their creators. These publications and indexes are of wide utility for both genealogists and academics.¹¹

Background to the OGS/NA 1871 Census Indexing Project

Recently, attempts have been made to assemble guides to indexes in particular fields and disciplines. For example, in 1984 the National Library of Canada surveyed 4,000 institutions and individuals across Canada and compiled an inventory of newspaper indexes.¹² In addition, Crowder has listed Ontario census indexes.¹³ In 1985, there were thirty indexes covering 180 municipalities; by 1987, there were 140 indexes covering 300 municipalities, and subsequently another hundred have been completed. Only in the late 1980s did some of these indexes use computer technology.

The OGS/NA Census Indexing Project had its genesis during a visit to Salt Lake City where Bruce Elliott used computer indexes to the American decennial census records for 1790 to 1850¹⁴ to discover the whereabouts of Irish emigrants who had gone to the United States.¹⁵ It became apparent that similar automated indexes would be advantageous for accessing Canadian census records.

Subsequently, Elliott, with Storey, an employee of the University of Western Ontario Law Library and an officer of the OGS’s London Branch, drew up a proposal to index the 1871 census of Ontario. The proposal was presented to the chairs of the twenty-five branches of the OGS in February 1982 as a project to commemorate the organization’s twenty-fifth anniversary in 1986. It was recommended that each branch appoint a coordinator to secure volunteers to transcribe names in its own geographic area, that

data be computerized, and that a series of county-wide indexes be printed in a standard format and sold by the branches. A province-wide index would also be produced and made available in microform.

The 1871 census was selected for a variety of reasons.¹⁶ The primary one was that most of the indexing activity previously done at the local level involved the 1852 and 1861 census returns. Hence, a province-wide project to index the 1871 census presented less threat of duplication than would have been the case had an earlier year been selected. The 1871 returns appeared to be the most extensive, and probably the most legible of the Canadian censuses. The 1871 census also antedated the massive movement of Ontario population to the prairie west. Finally, at the time the project was initiated, the 1881 returns had only recently been opened to public access and were still subject to some restrictions. The microfilms for the 1881 census were not widely available, and the 1891 census had not yet been released for research purposes.

The project was approved in principle by the OGS Council on 13 February 1982. The endeavour was officially announced at the Society's annual conference in Guelph the following May.¹⁷ The initial proposal acknowledged that the most effective way of assembling an alphabetic index was to computerize the data. A number of avenues were investigated, including placing the data on a series of microcomputers; data storage and memory requirements, however, dictated the use of a mainframe.

To obtain assistance for computerization of the data, John Clarke (Department of Geography, Carleton University) approached David Brown and Harold Naugler (of the NA) on behalf of the OGS. The NA became interested in the project because a detailed finding aid/index would assist researchers in their attempts to access the textual/manuscript census records retained by the NA. Moreover, it was felt that making the detailed index computerized would provide additional benefits to the NA:

- 1) The indexes would reduce the number of general requests for information associated with the 1871 census.
- 2) Since the indexes would be computerized, researchers could use the automated record for reasons quite outside the scope for which the records were primarily created (e.g., statistical analysis, demographic research, etc.).

As a consequence, in the spring of 1983, the NA decided to become a participant. It was agreed that OGS volunteers would extract various data from Schedules One and Two.¹⁸ Each head of household was extracted from Schedule One, as well as every person with a last name differing from that of the head. The latter individuals were defined as strays. All people were extracted from Schedule Two (deaths within the year).

A names database was developed in order to produce the indexes. Again, after consulting Clarke, it was decided that the indexes would include the following information from Schedule One for each household head or stray: last, first and second names; sex; age; birthplace; religious affiliation; ethnic origin; occupation; district, sub-district and division information; and the original census page number. Similar information was collected for people recorded in the death schedules. The indexes were to be developed and arranged by counties.

Under the auspices of the project, the NA was allocated the responsibility of

- 1) providing a collection form to be used by the OGS to record the information from microfilm copies of the census;
- 2) computerizing the information;
- 3) providing the OGS with a paper working copy of the machine readable data after initial entry, so it could be verified by OGS volunteers;
- 4) ensuring that any changes identified by the OGS were incorporated into an updated version of each automated district — a two-step process;
- 5) producing a laser quality printout of each individual, alphabetically arranged by district and sub-district so it could be used by the OGS to produce publishable indexes;
- 6) producing a laser quality printout of each individual, alphabetically arranged, at the province level; and,
- 7) after completion of the project, being responsible for the dissemination of the computerized information.

The OGS was allocated the responsibility for

- 1) distributing the collection form to each OGS branch throughout Ontario, along with a set of instructions to assist individuals (i.e., volunteers) with the transcription of the microfilm information onto the coding sheets;
- 2) developing the set of instructions;
- 3) coordinating the actual transcription process;
- 4) verifying the automated record after initial input - a three-step process; and,
- 5) coordinating and incurring the costs associated with the publication of the actual indexes.

Coordination of the activities on behalf of the NA became a dual responsibility shared by Brown and Naugler. Activities on behalf of the OGS were coordinated through Elliott, the provincial coordinator.

The decision to copy information for only heads, strays and the dead was made quite deliberately. There was concern that if a complete transcription of Schedule One was attempted, it might never be finished. Although it may have been advantageous to produce a digital copy of the whole census for Ontario, a complete undertaking was not possible without the participation of other institutions. As a result, the head-stray-dead approach seemed to be a reasonable method of indexing the population in a way that would facilitate locating, either directly or indirectly, every individual in Ontario.

It would also have been advantageous to record information from each of the nine schedules for each head of household and stray, but this was not possible because of the associated costs. In some instances, various OGS branches were unhappy with the decision to create indexes based on the project criteria and decided to copy the entire census.¹⁹ This work has resulted in complete returns for parts of the province. In total,

the OGS/NA names database contains information for approximately 450,000 individuals.

The process of automation began with mailing instructions to each branch coordinator explaining recruitment of transcribers, distribution of transcription forms and instruction sheets to non-resident volunteers, and tracking of progress regarding transcription. Regular progress of the project included the compilation of periodic statistical summaries on a county-by-county basis. After the information was transcribed from microfilm to the coding sheets by the OGS volunteers, the sheets were sent to a contractor to have the religious designations encoded. After this was finished, the information was entered into a number of temporary working files on an IBM system 370 mainframe computer. Initial input for most of the province was completed by 1985.

During the course of the project, the NA produced a series of printouts in order that individual records could be verified after data entry. Starting in 1986, these printouts were returned to the OGS so that the information could be reviewed at the district level. Obviously, data verification was required for a number of reasons, and the checking procedure revealed the variable quality of the original extraction. For instance, during the transcription phase of the project some difficulties were encountered when the volunteers attempted to read and interpret the census entries. The most common problem was interpreting an enumerator's handwriting. In some cases, it was difficult to determine whether an individual was a 'lawyer' or 'sawyer'. Only an intricate knowledge of the individuals who comprised the files could have resolved these interpretational problems. Furthermore, some records were inadvertently excluded, and others that did not meet the head-stray-dead criteria were included. Once the returns were reviewed by the various branch coordinators the printouts were returned to Elliott. With two assistants, he verified that all the data were in the correct columns, that the two-letter religion codes had all been entered, and that standard spellings had been used for the occupation and birthplace fields. The corrections were returned to the NA, so that the master files for each region could be updated.

A series of master files was created and organized into districts, so that it was not necessary to sort all 450,000 records whenever one was interested in modifying the observations for a specific location. Two master file versions of the database are extant. Version one consists of a series of flat or rectangular data files, organized as in **Table 1**. The information in these files is encoded in EBCDIC (Extended Binary Coded Decimal Interchange Code), which is the standard for all IBM mainframe and minicomputers. The information for some districts has been downloaded into ASCII (American Standards Code for Information Interchange) files, so that it can be used on microcomputers. Version two consists of a series of SAS (Statistical Analysis System) data sets. The SAS data sets were created to be used with the SAS 'Update' procedure in order to correct input errors. In terms of computer time, it is relatively cheaper to manipulate SAS data sets rather than raw data files.

Table 1

<i>Field Location</i>	<i>Field Name (Bytes)</i>	<i>Field Length</i>	<i>Field Attributes</i>
1	Surname	01-19	A
2	First Name	20-34	A
3	Second Name	35-48	A
4	Stray/Dead	49-50	N
5	Sex	51-52	N
6	Age	53-55	N
7	Birthplace	56-74	A
8	Religion	75-93	A
9	Ethnic Origin	94-111	A
10	Occupation	112-131	A
11	District Id.	132-135	N
12	Sub-districtId.	136-139	A
13	Division Id.	140-143	N
14	Page Number	144-146	AN

Information input to the master files was verified at least twice, and each time by a different individual. After the second round of corrections were entered, the camera-ready alphabetic printouts were produced for the thirty-volume series of regional indexes being published by the OGS. When the OGS and NA originally agreed to create the indexes in their present format, the cost of printing the county volumes increased beyond the financial capacity of most branches. As a consequence, the county indexes became publications of the parent society. In total, thirty volumes are projected, small adjoining counties being combined (See **Appendix a**).

Publication of the indexes began in the spring of 1986, when two volumes were launched at the Society's twenty-fifth anniversary seminar. Each year since, four additional volumes have appeared: two published to coincide with the Society's annual spring conference, and two in the autumn.

Small adjacent counties have been integrated into single indexes, so that individual volumes average 15,000 entries. The Society has attempted to publish volumes from different parts of the province in any given year. 500 copies of each book have been produced, enough to ensure a three- or four-year stock. Several of the early volumes are now out of print, and consideration is being given to reprinting these. In the beginning, publication was funded entirely from the reserve funds of the Society, but publication (of some volumes) has been assisted by grants from the Ontario Ministry of Culture and Communications and the Ontario Heritage Foundation.

Utility of the Indexes

There are many advantages to having a names index for the census records of an entire province. It allows basic biographical information to be uncovered quickly, even if the place of residence of the subject is not known with certainty. The textual index will, therefore, be of great value to genealogical beginners, who often do not know precisely where their ancestors lived. It will also benefit descendants of Ontario families living in Western Canada or the United States, many of whom are not aware of the former place

of residence of their ancestors in Ontario. The index should also prove useful to genealogists living in Europe, who are attempting to trace elusive families who may have emigrated to Canada during the nineteenth century. In addition, because the index provides access to the occurrence of every surname in the province in 1871, it will prove to be an unparalleled source for Ontario onomastic studies. Once the comprehensive provincial listing is available, it will be possible to identify all families of a given surname in the province, and to move from this starting-point to determine whether certain individuals share a common ancestry. Such patterns may even prove suggestive of possible places of origin within Ontario, of families who left before 1871. For the first time, social scientists interested in internal migration will be able to trace the later whereabouts of residents who left specific communities in the 1850s and 1860s.²⁰

The computer records created as a result of the project can also be used for secondary research. The computer files have been created in the public domain, which makes them available for private research. Depending on the nature and scope of the study, the files can serve either as a finding aid or as a research tool. They can provide the basis for a wide variety of studies through sampling or the identification of key variables. To mention a few, the data can be used to study general questions associated with ethnicity, occupation, migration and religion. In fact, the NA is beginning to receive an increasing volume of enquiries about the possible use of the data.²¹ This activity is occurring even without having advertized the fact that the development of the database is nearing completion, and that the data are available.

The greatest constraint on the use of the records for secondary research is dictated by the criteria used to create the database. As noted by Darroch,²² this is a problem associated with all 'project-oriented' databases when attempting to use them for other types of research. On the other hand, if a more detailed database is required in order to answer specific research questions, the present base of information can be supplemented. As has been mentioned, this has in fact occurred, and is the focus of the next section of the paper.

Using the OGS/NA Data Files: A Case Study

McLean's introduction to the computer files from the OGS/NA 1871 Census Indexing Project grew out of research on the labour of married women in working-class families in Ottawa in 1871. The following critique is based on this experience as a user of these files. In particular, it will outline how the data were used for an analysis of domestic economy in two-parent families.

For the purposes of the research, the computer file provided only the initial basis for data collection, but nonetheless its contribution was significant. The computerization of all the data allowed the researcher to merge the data from three wards in order to select a computer-generated, random sample of families based on the statistical requirements of the study. Access to the manuscript census by computer eliminated many tedious hours of generating a sample by cranking the microfilm reader and counting, and inevitably recounting the discontinuously numbered families in multiple wards. The computerization of the manuscript data enables researchers readily to generate samples covering vast rural and urban districts throughout Ontario.

For this case study, the initial extraction of data from the OGS/NA files included all fields. After making the selection, it was necessary to return to the original manuscript

census to add other information. Whereas the original manuscript census contained twenty-three variables, the OGS/NA file includes only ten. The addition of district, sub-district, division number and page number to the OGS/NA files facilitated the use of the computer files as a finding aid, and provided the necessary link to the manuscript census.

For McLean's study, the adaptation of the selected computer files involved three procedures: the elimination of specific fields; the inclusion of other fields needed for the analysis (e.g., literacy²³ from Schedule One, and agricultural data from Schedules Four and Five); and the addition of other records which included data on the remaining individuals in the household. This reworking of the file was accomplished without destroying, or distorting, the original file format — a demonstration of the files' flexibility and adaptability for individual research needs.

While the computer file offers clear advantages for research purposes, users will also encounter some problems. The OGS/NA census files were created following the traditional method of identifying families through the head-of-household designation.²⁴ This has two significant implications for the utility of the files as a research tool. By selecting individuals on the basis of household, married women and children are systematically excluded. A woman appears as a head of household only in the absence of a male head.²⁵ This omission in the files has implications beyond simply leaving out the women. It can also (mis)lead the researcher to consider, either implicitly or explicitly, only the ethnic or religious characteristics of the male head of household as representative of the ethnicity and religion of the entire family. While studies of families have long recognized the significance of culture as a variable, it is important to consider whose culture is the determining variable. As household managers, it was the married women who made critical decisions regarding family strategies. In McLean's study of three wards in Ottawa in 1871, almost ten per cent of the marriages were inter-ethnic.²⁶ Identifying the ethnicity of the female also identified the ethnicity of the decision maker.

In assembling the original OGS/NA data base, the coding of some fields was altered from the original text. In some instances this was beneficial. Religions, for example, were standardized as two digit codes;²⁷ other fields appear as reported in the census, and thus maintain the file's "fidelity to the sources".²⁸ However, one field requires further comment. Under the heading "occupation," job descriptions were generally entered as they appeared in the enumeration returns. Editorial judgements have not been made. This provides both advantages and disadvantages. On the one hand, it allows for a precise occupational description as provided by the enumerator, rather than the grouping of occupations under a more generic term. To cite one example, stonecutter appears as a separate category from stonemason. Occupational variations can then be precisely identified and regrouped according to the design of the intended research. Moreover, occupational designations appear as text, and not as numerical codes. This has the advantage of facilitating a quick visual scan of the data to provide an overview of occupations. For purposes of occupational classification, however, this can present a dilemma. The most common case in point is *labourer*. In the files, *labourer* also appears as *lab*, *day labourer*, *laborer*, *labor* and *labour*. Consequently, the researcher must identify all possible words and spellings in order to locate and extract individuals based on occupation. The occupation *labourer* is an extreme example of multiple terms and

spelling, but nonetheless raises an important consideration for researchers interested in extracting information on this basis.

Conclusion

The creation of the OGS/NA database, although limited in length and scope, provides a unique opportunity to access information on approximately 450,000 individuals in the 1871 census for Ontario. With the aid of this research tool, historians, demographers, geographers, sociologists and economists, can now pursue a wide variety of studies based on the information provided in these files. The scope of the study can be defined broadly by country, or narrowly within a municipal ward or district. The files can also form the basis for a systematic collection of aggregate data, or provide the information links to other sources. As a genealogical reference tool, the files facilitate locating, either directly or indirectly, every individual within Ontario in 1871.

Despite its limitations, the OGS/NA 1871 Census Indexing Project illustrates how public institutions, private organizations and individuals can work together to benefit genealogical, historical and other research. This file provides a model for the union of diverse interests, and promotes through computer access the use of public data for either public or private ends.

Appendix

The following indexes have been published as part of the OGS/NA 1871 Census Indexing Project.

<i>Counties</i>	<i>Date Published</i>	<i>Number of Entries</i>
Brant	December 1986	9,279
Bruce	June 1989	10,193
Durham	September 1991	9,514
Elgin	September 1989	9,034
Essex-Kent	September 1989	20,021
Grey	September 1991	13,422
Haldimand-Norfolk	October 1988	14,131
Halton-Peel(*)	March 1986	12,813
Hamilton-Wentworth	September 1987	17,702
Hastings-Prince Edward	May 1991	17,573
Huron(*)	March 1986	15,896
Kingston-Frontenac-		
Lennox-Addington(*)	October 1988	17,288
Leeds-Grenville	September 1990	14,730
Lambton	September 1986	9,901
Lincoln-Welland-		
London-Middlesex	May 1990	22,260
Niagara(*)	February 1987	15,881
Northumberland	May 1990	9,664
Ottawa-Carleton	May 1988	14,105
Ontario	May 1991	11,750
Oxford	September 1991	12,077
Peterborough-Victoria	May 1988	15,943

Perth	May 1991	10,961
Simcoe(*)	February 1987	15,308
Stormont-Dundas-Glengarry- Prescott-Russell	September 1987	17,591
Waterloo	September 1990	9,513
Wellington	June 1989	15,576
Total		362,126

(*) - Out of Print

Projected Volumes: Renfrew and the North, York, Lanark and Toronto.

(For current information on price and availability, contact the Ontario Genealogical Society, 40 Orchard View Blvd., Suite 251, Toronto, Ontario, M4R 1B9.)

Notes

- * Lorna McLean is grateful to Professors Michael J. Piva and Chad Gaffield (University of Ottawa) for their instructive comments on an earlier draft of the section of this paper entitled, "Using the OGS/NA Data Files: A Case Study." In addition, a modified version of this paper was presented at the 69th Annual Meeting of the Canadian Historical Association, "Counting Ontarians/Recenser les Ontariens," Victoria, British Columbia, 26-29 May 1990.
- 1 The term 'secondary research' refers to computerized information that can be used for purposes other than those for which the information has been automated.
 - 2 M.B. Katz, *The People of Hamilton, Canada West: Family and Class in a Mid-Nineteenth-Century City* (Cambridge, 1985).
 - 3 J. Clarke, *Geographical Analysis of Colonial Settlement in the Western District of Upper Canada 1788-1850*, unpublished Ph.D. dissertation, University of Western Ontario (1970); "Spatial Variations in Population Density, South-Western Ontario in 1851," in W.P. Adams and F. Helleiner (eds.), *International Geography* (Toronto, 1972), pp. 408-411; "Aspects of Land Acquisition in Essex County, Ontario 1790-1900," *Histoire sociale/Social History* 11, no. 21 (1978), pp. 98-118. J. Clarke and D.L. Brown, "Land Prices in Essex County, Ontario 1798 to 1852," *Canadian Geographer* XXVI, 4, (1982), pp. 300-317; "Pricing Decisions for Ontario Land: The Farm Community and the Speculator in Essex County During the First Half of the Nineteenth Century," *Canadian Geographer* Geographica 31, no. 2, (1987), pp. 169-177; "The Upper Canadian Land Market: Insights from Essex County," *Canadian Historical Review* LXIX, no. 2, (1988), pp. 222-234. A.G. Brunger, "Analysis of Site Factors in Nineteenth Century Ontario Settlement," in W.P. Adams and G. Helleiner (eds.), *International Geography* (Toronto, 1972), pp. 400-402; *A Spatial Analysis of Individual Settlement in Southern London District, Upper Canada, 1800-1836*, unpublished Ph.D. dissertation (University of Western Ontario, 1973); "Geographical Proximity among Pre-Famine Catholic Irish Settlers in Upper Canada," *Journal of Historical Geography* 8, no. 3, (1982), pp. 265-282.
 - 4 D. Gagan, *Hopeful Travellers: Land, Families, and Social Change in Mid-Victorian Peel County, Canada West*, (Toronto, 1981).
 - 5 C. Gaffield, *Language, Schooling, and Cultural Conflict: The Origins of the French-Language Controversy in Ontario* (Montreal & Kingston, 1987).
 - 6 See, for example, G. Darroch and M.D. Ornstein, "Family Coresidence in Canada in 1871: Family Life-Cycles, Occupations and Networks of Mutual Aid," *Historical Papers* (Canadian Historical Association, 1983), pp. 30-55.
 - 7 For a complete bibliography of SOREP (1972-1989) see G. Bouchard, *SOREP Annual Report 1988-89* (1989), pp. 169-208. For information on le programme de recherche en démographie historique (P.R.D.H.) refer to H. Charbonneau, "Le registre de population du Québec ancien Bilan de vingt années de recherches," *Histoire sociale/Social History* XXI, no. 42 (1988), November, pp. 295-299; and, J. Legaré "Le Programme de recherche en démographie historique de l'Université de Montréal: fondements, méthodes, moyens et résultats", *Études canadiennes/Canadian Studies* 10 (June 1981), pp. 149-182.
 - 8 This discussion was subsequently published as a round-table: "Les bases de données historiques: L'expérience canadienne depuis quinze ans/Historical Databases: The Canadian Experience Over Fifteen Years," *Histoire sociale/Social History* XXI (1988), pp. 283-318.
 - 9 D. Gagan, "Some Comments on the Canadian Experience with Historical Databases," in *Histoire sociale/Social History* XXI (42), p. 300.
 - 10 *Ibid.*, p. 301.
 - 11 A bibliographical article dealing with the most important of these publications is B.S. Elliott, "Landmarks in Ontario Genealogy: A Twenty-five Year Retrospective," *Families* 26, no. 4 (1987), pp. 195-200.
 - 12 S. Burrows and F. Gaudet, *Checklist of Indexes to Canadian Newspapers* (Ottawa, 1987).

- 13 N.K. Crowder, *Indexes to Ontario Census Records: An Inventory* (Toronto, 1985, 1987); and 1988 Supplement (Nepean, 1988).
- 14 Most of the U.S. indexes are confined to particular states, and their utility is limited because they usually contain only names. Unfortunately, some of the indexes are known to have a forty per cent error rate (see J.F. Valentine, "Effective Use of Census Indexes In Locating People," *Genealogical Journal* 4, no. 2 (June 1975), pp. 51-60). In England, the Federation of Family History Societies has encouraged census indexing projects. Generally, the results have been published on a parish-by-parish basis. Many of the indexes contain only surnames, which severely limits their usefulness (see J. Gibson and C. Chapman, *Census Indexes and Indexing* (Plymouth, 1981). Recently, the Mormon Church and the Federation of Family History Societies have been working towards the creation of a comprehensive computer index to the 1881 census of England. The first two counties were completed in 1991.
- 15 B.S. Elliott, *Irish Migrants in the Canadas: A New Approach* (Montreal & Kingston, Belfast, 1988).
- 16 As users, historians and other academics have acknowledged both the strengths and weaknesses of the manuscript census. To cite a few examples: A. Brookes, "'Doing the Best I Can': The Taking of the 1861 New Brunswick Census," *Histoire sociale/Social History* IX (1976), pp. 70-91; D.L. Brown, "Census Records of Upper Canada: 1791-1891," *Seminar '88 Proceedings* (Ottawa 1988, May 20-22), pp. Q1-Q21; J. Clarke, and D.L. Brown, "Foci of Human Activity, Essex County, Ontario, 1825-52: Archival Sources and Research Strategies," *Archivaria* 12 (1982), pp. 31-57; D.P. Gagan, "Enumerator's Instructions for the Census of Canada 1852 and 1861," *Histoire sociale/Social History* VII (1974), pp. 353-365; E. Phelps, "Counting Ontario's People, 1793-1981: An Essay on Demographic Sources," *The Mirror* 1, no. 1 (September 1981), pp. 77-94.
- 17 Ontario Genealogical Society, *Newsleaf* 12, no. 3 (September 1982), pp. 29-30.
- 18 For the 1871 census, the following schedules were employed:
 Schedule No. 1 -Nominal Return of the Living;
 Schedule No. 2 -Nominal Return of the Deaths within the past twelve months;
 Schedule No. 3 -Return of Public Institutions, Real Estate, Vehicles and Implements;
 Schedule No. 4 -Return of Cultivated Lands, Field Products, Plants and Fruits;
 Schedule No. 5 -Return of Live Stock, Animal Products, Home-Made Fabrics and Furs;
 Schedule No. 6 -Return of Industrial Establishments;
 Schedule No. 7 -Return of Products of the Forest;
 Schedule No. 8 -Return of Shipping and Fisheries; and
 Schedule No. 9 -Return of Minerals.
- 19 Only Kent and Oxford branches completed the extended copying. They accomplished the work manually, and published their own sets of volumes, additional to the head-stray-dead index published by the parent society. The Waterloo-Wellington Branch completed data entry for various townships, and copies of this information are available from the NA.
- 20 The authors are not aware of the textual volumes having yet been used for migration studies, but Waller of Kingston has recently published an alphabetical version of the 1861 census for the city of Kingston, adding the 1871 references from the Frontenac-Lennox-Addington volume to the entries for the heads of family. Analysis of the entries for heads whose surnames start with the letter 'B', reveals the following residential changes between 1861 and 1871:

Same Ward	35
Different Ward	44
Pittsburgh Township	03
Kingston Township	03
Adolphustown	01
Bedford	01
Ernesttown	01
Napanee	01
Wolfe Island	01
Dead or left FLA	101
Total	191

Of course, one would expect more people to have come into the city from the countryside than to have moved in the opposite direction. See R. Waller *1861 Census, City of Kingston* (Kingston, 1990).

- 21 Copies of the district files are available in either EBCDIC code on 9-track magnetic tape, or in ASCII code on floppy disk from the National Archives of Canada, Ottawa, Ontario, K1A 0N3. The data are being disseminated on a district basis at the price of \$20.00 per district. Clients are charged an additional \$20.00 per magnetic tape, or \$5.00 per floppy disk.
- 22 G. Darroch, "A Study of Census Manuscript Data for Central Ontario, 1861-1871. Reflections on a Project and on Historical Archives," *Histoire sociale/Social History* XXI, no. 42 (November 1988), pp. 304-311.
- 23 The use of census data for research on literacy is discussed in H.J. Mays and H.F. Manz, "Literacy and Social Structure in Nineteenth Century Ontario: An Exercise in Historical Methodology," *Histoire sociale/Social History* 7 (1974), pp. 331-345; and H.S. Graff, "What the 1861 Census can tell us about Literacy: A Reply," *Histoire sociale/Social History* 8 (1975), pp. 337-349.

- 24 Compare this project to the 1880 Census Project conducted by the Wisconsin Centre for Historical Demography, where all the census data from the 1880 census records for the state of Wisconsin were encoded in the data files. The manual, however, indicates a sophisticated skill level required for usage. See C.W. Bass and B.C. Noonan, *1880 Census Project Users Manual* (Wisconsin, 1984).
- 25 Additional women, men and children appear in the OGS/NA files as strays; these include the majority of the boarder/servant population.
- 26 See L.R. McLean, "Home, Yard and Neighbourhood: Women's Work and the Urban Working-Class Family Economy, Ottawa, 1871," unpublished M.A. Thesis, Department of History, University of Ottawa, 1990.
- 27 Both the *Documentation Manual For the Machine Readable Data File* that accompanies the files, and the explanation of columns that appears in the published *Index to the 1871 Census of Ontario*, identify the codification procedures. The documentation manual is an invaluable aid to the researcher because of its comprehensiveness and ease of use.
- 28 The term "fidelity to the sources" is used by Sundin and Winchester. See J. Sundin, and I. Winchester, "Towards Intelligent Databases: or the Database as Historical Archivist," *Archivaria* 14 (Summer, 1982), p. 145. One notable exception to the fidelity of sources occurs in districts that originally recorded the information on the manuscript census in French. The information for all French districts and sub-districts was translated and recorded in English.