THE CHANGING PATTERNS OF THE DISTRIBUTION AND COMPOSITION OF MANUFACTURING INDUSTRIES IN THE CITY OF BRANTFORD FROM 1844 TO 1925

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April 1972

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"One of the aims of sound historical education must be to wean men from expecting automatic repetition and from juggling with uncorrelated precedents and analogies; they must be trained to fit things into long-range historical processes, and not to think in isolated word-concepts working in a void; for it is possible to believe anything so long as the question is not asked how it could come to be, or how it could work."[1]

Introduction

It is in the belief that one should ask "how it could come to be", that this paper is being written. The City of Brantford in the nineteenth century was a good example of an urban centre in Southern Ontario that held great promise for the future. It was the home of many prominent persons who played a considerable role on the development of this province. In many ways Brantford typifies the experiences of the urban centres that developed during the nineteenth century in Upper Canada. The visions of its leading citizens, the vigour, belief and spirit of its growing population in fostering the development of their community, are reflected in Brantford's active participation in the canal, railway, and industrial periods of Canada's history. As late as 1910, Brantford was the third leading exporter of manufactured goods in Canada, surpassed only by Montreal and Toronto.[2]

However, with improvements in transportation and technology, and with the continued expansion of industry and other urban centres in Canada, it soon became apparent that the initial advantages of Brantford's location would not be sufficient to fulfill its early prospects.

This paper will analyze the changes in the distribution and composition of manufacturing industries in Brantford from 1844 to 1925. A general chronological development will be presented,

with detailed examination and mapping of the industries for the years 1850, 1875, 1900 and 1925. These years have been selected partly because they represent significant stages in the industrial development of the city, and partly because of the availability of data for these dates.

The year 1850 marks the evolution of Brantford to town status, and the initial emergence of manufacturing industries in the town. This date also marks the high point of expectation for profit from the Grand River Navigation Canal, immediately before the coming of the first railway to the town.

The period 1850-1875 saw the development of the basic trans--portation network that would serve Brantford. Corresponding to these improvements and problems is the formation of the basic types of industry in Brantford, that would persist into the twentieth century. By 1875, the role of agricultural implement and metal working industries in the economic evolution of Brantford is clearly defined.

The period 1875-1900 saw the incorporation of Brantford as a city. Moderate growth in both population and industry occur during this time span. The basic industrial types established in the previous period were expanded and their relative position consolidated. Particularly significant is the growth of the A. Harris and Co. and the establishment of the Cockshutt Plow Co., the Brantford Carriage Co., and the Verity Plow Co. in the city. The year 1900 then confirms and extends the emerging pattern and composition of industry in Brantford.

The final period, 1900-1925 marks an interval of rapid growth in Brantford, in both population and industry. The basic industrial pattern determined in the previous periods is maintained; however, the industrial base becomes considerably more diversified. The year 1925 occurs near the starting point of what was to be a twenty year (1920-1940) interval of "standing still" for Brantford. This year also coincides with the general business recession of the

1920's and the much more severe depression of the 1930's that affected North America.

Sources of Information

The general history of Brantford and Brant County has been well documented in three basic works; Warner, Beers and Co., 1883; F.D. Reville, 1920; and C.M. Johnston, 1967.[3]

The various directories[4] that have been published for the city provide the basic information necessary for gathering lists of the industries and for mapping their locations. The Vernon and Union directories, since 1895, provide a street list that accounts for the occupancy of each building. The earlier directories (1851 MacKay; 1869 and 1871 Province of Ontario) provide lists of businesses, as well as brief summaries of the chief features of the town for these dates. The first town directory (Wm. Evans), for 1875-76 provides brief descriptions of the main manufacturing establishments together with employment data. A street index, and an alphabetical list of the inhabitants of the town are also given. City of Brantford directories are available at regular intervals from 1877-1895, and then yearly from 1895 to the present day.

The library of the Brantford Expositor is a particularly useful source of information to supplement the directories. Micro-film of the Expositor is available from 1852 to the present, although the earliest years are incomplete. Also on file, in manuscript form, are the numerous special editions that have been published, including several industrial surveys. Many of these special reports include a considerable amount of historical in-formation, as for example, the 1967 Centennial of Canada edition.[5]

The Brantford Public Library and the Brant Historical Society provided the basis from which the maps used in this report were drawn. In addition, they provided general histories, copies of old directories, and files of industrial papers.

The Census of Canada was the last major data source utilized in this paper. The returns for Brantford include the 1842 census, available on microfilm at McMaster. Brantford at this time was part of the Gore District of Canada West.

Three basic problems occur in using the census returns. First of all, returns for Brantford as a separate unit occur only sporadically. The 1842 and 1851 reports treat Brantford as a unit, with, however, the 1851 report of mills and manufactories appearing to be incomplete. For 1861, Brantford is included as a part of the returns for Brant County, and from 1871-1901 the city is a part of a unit called Brant South. Starting in the 1911 census and continuing to the present, Brantford is once again separated from the County and returns are given for the city.

The second problem relates directly to the first. In search--ing for industrial employment data, the lack of reports on the urban unit of Brantford in the census requires one to use a variety of different sources. Thus, the 1875 town directory becomes the source for this date; for 1900, the sixtieth anniversary edition of the Brantford Courier is relied upon; while in 1925, the 1921 and 1931 census reports are utilized. The 1901 and 1911 census do provide an aggregate summary of the total numbers of persons employed in manufacturing, and while no breakdown is made for the various industrial groups, the aggregate numbers are useful in evaluating the available sources.

The third problem deals with a change in definition of what constitutes a factory for census purposes. Prior to 1901, where data is available, any industry employing one or more individuals is enumerated. However, the 1901 report states "no factory is to be so recognized unless five persons are employed".[6] Exceptions were to include brick and tile works, butter and cheese factories, and flour, grist, and saw mills. Since there is a problem in obtaining accurate employment data for Brantford prior to 1911, it was decided to employ the 1901 definition of five employees per factory in screening the research data. This holds true

throughout the paper, with the exception of the work up to 1850.

Brantford 1830-1875

Although there is a record of white settlement on the site of Brantford as early as 1818, it was not until 1830 that 807 acres of land were obtained from Chief John Brant of the Six Nations, as the village site. During the course of 1830, the village site was surveyed by Lewis Burwell, and shortly afterwards, the lots were auctioned off. (See Map 1.) The demand for lots was sufficiently large that Burwell sought permission to extend the survey;[7] this request was granted and the survey was completed by the end of 1833.

These earliest settlers were in effect squatters on the lands granted by the Crown to the Six Nations Indians. An arduous walk to Ancaster was required of these early inhabitants whenever wheat had to be ground into flour. The plank road to Hamilton, which had been opened in 1810, soon became a busy thoroughfare. In 1825, the first industry, a grist mill, was built by Marshall Lewis, using the waters of the Grand River as the power source.[8] Grain could now be milled at the village site. By 1832, two distilleries, a brewery, and a saw mill had also been constructed in the village. (See Map 1.) These earliest industries were de-signed to either process the natural and agricultural products of the region or to utilize the grains in the production of alcoholic beverages.

Brantford had good prospects for growth as a market centre, commanding as it did the middle section of the Grand River, on which there was some potential for navigation, and being on the plank road connecting Hamilton and London. In addition, it was in the centre of a good agricultural region, well watered, with abun-dant timber resources in the Grand River watershed. Thus by 1842, with a population of about 1500, the early trades and professions that had developed in the village were those that would meet the needs of a) a growing village, b) an agricultural

area around the village, and c) traffic along the plank road to Hamilton. The trades and professions in the village in 1842 are summarized in Table 1.

The period 1849 to Confederation in 1867 was one of rapid population growth in Upper Canada. The resulting growth in farm productivity generated an active search for markets. Fortunately for Upper Canada, trade with the United States was liberalized by Reciprocity in 1854, and trade with Europe, particularly in wheat, increased because of the effects of the Crimean War in 1854-56. With rising prices for wheat, together with increased de--mand, this was a time of prosperity for farmers in Upper Canada.

The leading citizens of Brantford were not slow in appreciа--ting the potential for navigation on the Grand River. Here was a natural highway leading southwards into the Great Lakes system, providing ready opportunity to trade with American ports on Lake Erie. Buffalo was of particular significance since it connected with the Erie Canal system leading to New York.

The Welland Canal project, completed in 1829, provided the necessary impetus and opportunity for development of the Grand River. With completion of the canal, it was now possible to ship goods not only to American markets, but also into Lake Ontario. More significant, however, was the fact that a dam had been constructed at Dunnville on the Grand River to provide extra water via a feeder channel for the regulation of water levels in the Welland Canal. This dam raised the level of water behind the structure, thereby increasing the potential for navigation on the river.[9] As early as 1829 William H. Merritt and Absolom Galt, who had been involved in the construction of the Welland Canal, had conceived of building a canal to Brantford. Meetings were held in Brantford, by these two men, with prominent citizens of the community. A charter authorizing such a project was success--fully obtained by this group in 1832, and the Grand River Navige--tion Company was established. Construction began almost imme--iately, and during the interval 1834-1840, a series of five dams

Table 1.

Census Returns, 1842, Canada West:
Gore District: Brantford

Trades and Professions

20 carpenters
1 minister
3 school teachers
18 labourers
8 merchants
8 innkeepers
4 physicians
4 lawyers
1 surgeon
4 blacksmiths
4 shoemakers
2 coopers
1 shingle maker
2 tailors
10 millers
1 cabinetmaker
1 harness maker
1 wagon maker
1 distiller
1 millwright
1 civil engineer

Source: Census of Canada 1842
Microfilm Reel #C-1345

and five locks, together with a towpath were built between Cale-
-donia and Cayuga.[10] The major problem faced by the project was the
lack of sufficient water depth just below Brantford and extending
downstream for a distance of about two and one half miles.
This was overcome by the construction of the so-called "deep-cut"
in 1847, at which time the grand opening of the system was held.

The canal was actively used throughout the period 1843-1861
for the traffic of both goods and passengers. The steamer "Queen"
made regular runs on the Grand River and Lake Erie from Buffalo to
Brantford.[11] The chief exports through the port of Brantford were
timber and agricultural products,[12] with return traffic consisting
of manufactured goods.

The initial prospects for this canal had seemed to be very
favourable for increasing trade and commerce. Unfortunately for
Brantford, a number of factors prevented fulfillment of this
promise. The delay and added expense of the "deep cut" below-
Brantford prevented optimim utilization of the canal system.
The added cost of bringing navigable waters into Brantford could
not be met from tolls or water rents, thereby necessitating extra
loan financing. By the end of 1847, when the Brantford cut had
been completed, much of the lower system was in need of repair.
There was also considerable discussion in Canada about the possi-
-bilities of the construction of railway lines that could operate in
interior regions without depending upon natural routeways.
This possibility posed an immediate threat to the limited hinter-
-land that the port of Brantford had managed to develop. Thus 1853[13]
can be considered as the watershed year for the Grand River Canal.
After this date, railways in the vicinity of Brantford became
a reality; Brantford's hinterland, limited to start with, was dis-
-sected and serviced by these new rail lines. The canal system,
suffering from decreased toll revenues, coupled with climbing
repair bills, ran into ever increasing financial difficulties.
The town council, which had taken out a first mortgage on the
Company's property, decided in 1859 that the financial situation
of the canal was so hopeless that they voted to foreclose the

mortgage. The canal system was used on a much reduced basis in the period 1861-1881, with water power being one of its major functions.

Although the canal cannot be regarded as a financial success, it did promote the growth of industry, and the financial pros--perity of Brantford. For a short period before the railway era, it was the major means of exporting commodities cheaply to outside markets. Brantford, being the head of navigation, was able to control, what was for the time, a significant hinterland with which it could exchange goods. The canal represented a major improvement in inter-region communications and did help to expand the settlement in the Grand River Valley. In fact, several town sites were surveyed at the dam and lock locations on the lower Grand.[14] Finally, the canal system provided not only an opportunity for expanded commerce, but also a convenient facility for the generation of water power. As a result, a number of mills and factories were established in the canal re--gion.

It was during this canal building era that the first true manufacturing industry was established in Brantford. In 1844, P.C. Van Brocklin, a Dutch-American from Pennsylvania, started to manufacture wood stoves in a small frame building on Dalhousie Street. The mechanical power for the firm was provided by a gear--ing system that was turned by a horse in the basement walking around in a circle.[15] This firm became the nucleus of one of Brantford's most enduring and significant industries, the Waterous Engine Works (now Koehring- Waterous Ltd.).

The Van Brocklin foundry was followed by the Goold-Bennett Co. (about 1847) iron and brass foundry which located on the south side of Colborne Street near Charlotte Street. This firm produced stoves, mill gearing, steam engine works and agricul--tural implements. In 1849, Norton and Company, manufacturers of stoneware pottery, opened a factory on the north-east corner of Clarence and Dalhousie Streets. At the time, this firm was the

Table 2 Industries in Brantford in 1850

Sources: The Canada Directory 1851
Census of Canada 1851-52

Foundries and Metal Working
1. Goold-Bennett Co.
2. Van Brocklin Co.
16. Thos. Cowherd

Woodworking
3. Bacon and Chave chair and furniture factory
4. S. Cole; sash, blind and agricultural factory
5. R. and Wm. Dalrymple cabinet, chair and soda factory
6. Hulbert saw mill
7. J. Steele lumber mill; pot and pearl ash

Distilleries
17. J. Morby distillery
8. Charles Watts distillery
10. John Steele distillery

Flour Mills
11. John Wilkes
12. John Kerby

Pottery Works
13. Morton and Co.

Tannery
14. Duncan McKay

Brewery
15. A. Spencer

N.B. The numerals correspond to those that appear on Map 2.

only stoneware factory in Canada West, and it soon established a good name for itself through its exports.

The industrial progress of Brantford at mid-century is summarized in Table 2, and on Map 2.

In addition to the establishments shown in the table, there is a large number of cabinetmakers, boot and shoemakers, carriage and wagon makers and blacksmiths listed as professions and trades in the 1851 directory.[16] These, however, appear to have been workshop operations employing only a single person and hence are not included in the summary table.

The locations of these early industries are clearly associated with the plank road (Colborne St.) to Hamilton, and the Grand River. Both of these locations were the main arteries of communication for the town in 1850. In addition, the Grand River and the canal provided good water power sites.

These early industries were on a rather small scale, for example, the two iron and brass foundries employed only about eighty three men, while the stoneware factory employed approximately six men.[17] The other establishments on the list employed five persons or less each. Nevertheless, these industries added a new dimension to the economic patterns of Brantford, and contributed materially to the town's prosperity. Manufacturing industries had made their appearance in the urban landscape. From this point in time, industry would come to play an increasing role in the development of the community.

Brantford's Railroads

A major growth force in Canada at mid-century was the railroad. A "railway fever" spread across the nation creating high hopes, and in some cases, very ambitious building projects. Brantford was to be no different; the town soon found itself actively engaged in a project of its own making, the Buffalo and Brantford Railway.[18]

The original plan of the Great Western Railway had called for the construction of the main line through Brantford.[19] This appeared to be a logical plan since Brantford, at that time, was the largest centre in the Grand River Valley. A hostility appears to have developed between the directors of the Great Western Company and the town council of Brantford. Perhaps the council took for granted the passage of the main line through the town. Whatever the reasons, the council did not vote any financial support to the Company. The outcome of this conflict was that when the rail line was surveyed, it missed Brantford, passing instead through Harrisburg and Paris, seven miles to the north of the town.

The citizens of Brantford, disappointed at the prospects of not being served by a railroad, undertook the construction of their own line. The Buffalo and Brantford Railway, over the protests of the Great Western Company, received its charter in 1850. Major financing was provided by the towns and townships through which the line was to pass. The original intent had been to end the line at Brantford. However, the Company received numerous requests for extension of the railway from interests in Paris, Stratford, and particularly Goderich. In 1852, application was made to Parliament for such an extension. Again, the application was protested, this time by the directors of the Toronto and Guelph Railway on behalf of the Canada Company.[20] However, having raised $500,000 of English capital as backing for the venture, the charter was granted.

Ultimately,[20] this extension to Stratford and Goderich, which was governed by a mandatory timetable, placed such an excessive financial burden on the new company, that in November 1855, the railway was leased to Hazeltine, Powell and Company of Liverpool, England.[21] By 1866, the line had been leased in perpetuity to the Grand Trunk Railway Company.[22]

The grand opening of the Buffalo and Brantford Railway took place on January 13, 1854, at which time there was a huge celebration in Brantford. These were the halcyon days of the Company; all

prospects pointed to growth and prosperity. The second grand opening of the line, this time, under the control of the new tenants, took place in Goderich on July 2, 1858.

This railroad had a considerable effect on Brantford. The Grand River Navigation Company's demise was hastened by this new development in transportation. Railroads were much more rapid and reliable than canals, and more important, they were not tied down to natural, and hence, limited, routeways. The Buffalo and Brantford Railway by its intersections with the Grand Trunk and Great Western lines had potential access to much of Southern Ontario.

During the construction phases of the railway, temporary employment was provided for some of the local inhabitants. With the establishment of a rail depot, roundhouse and machine shops in the town to service the railway, permanent employment was generated. Some of the Brantford firms provided equipment for the line; for example, the Van Brocklin firm obtained a contract worth 50,000 British pounds for the construction of railway cars.[23] Finally, of course, the merchants of Brantford had an efficient transit system available to them, that was generating new and expanded trade opportunites. Raw materials, fuels, finished goods and a labour force could be attracted to an expanding community.

Unfortunately Brantford's location proved to be much less strategic than it had appeared to be in the hectic and often confused days of early rail construction. The Great Western and Grand Trunk Railways both served much larger hinterlands than the Buffalo and Brantford line. Moreover, these two competing lines cut across what hinterland Brantford had served in the canal period. This multiplicity of lines serving essentially similar areas, eventually led to the take-over of the smaller railways by the larger companies. Not being on the main line of one of the two major companies certainly hindered the growth potential of Brantford. In an attempt to obtain at least partial service on the Great

Western system, a branch line was constructed from Brantford to Harrisburg in 1872. This branch line proved to be highly unsatisfactory because of the excessive delays caused by the required transfer of goods and passengers, in Brantford and again at the station in Harrisburg. Brantford finally was placed on the main line of the Grand Trunk Railway in 1905.

Another rail venture, the Brantford, Norfolk and Port Burwell Railway was started on 1874 but it soon ran into financial difficulties. The Brantford capital was withdrawn from the project and a deal was negotiated with the Great Western Company, which assumed control of the partially constructed line in 1877 and completed it.

Brantford in 1875

During the interval 1850-1875, Brantford's population grew from approximately 4000 to about 9000 (Graph 1). Brantford had attained town status in 1847, and in 1853 it had become the county seat of the newly created Brant County. Three conditions, that had to be met before County status became permanent, had been set out in the 1851 legislation:-[24]

a) a county council had to be selected
b) a courthouse had to be constructed
c) a jail had to be built.

These conditions were fulfilled by January 1853 with both structures having been built in Brantford. Thus a regional administrative function had been taken on by the town.

Further progress in the town is shown by the establishment of the Brantford Gas Company in 1854, for the purpose of providing illuminating gas, and in 1870 the Brantford Water Works plant to provide water for fire fighting purposes.

Considerable growth had taken place in the industrial sector of the town's economy in response to the new opportunities for trade that had been generated by the canal and the railroads. (Table 3) Brantford continued to be the major agricultural service centre

GRAPH 1.

POPULATION

GROWTH OF BRANTFORD

SOURCE: CENSUS OF CANADA
CITY HALL - BRANTFORD

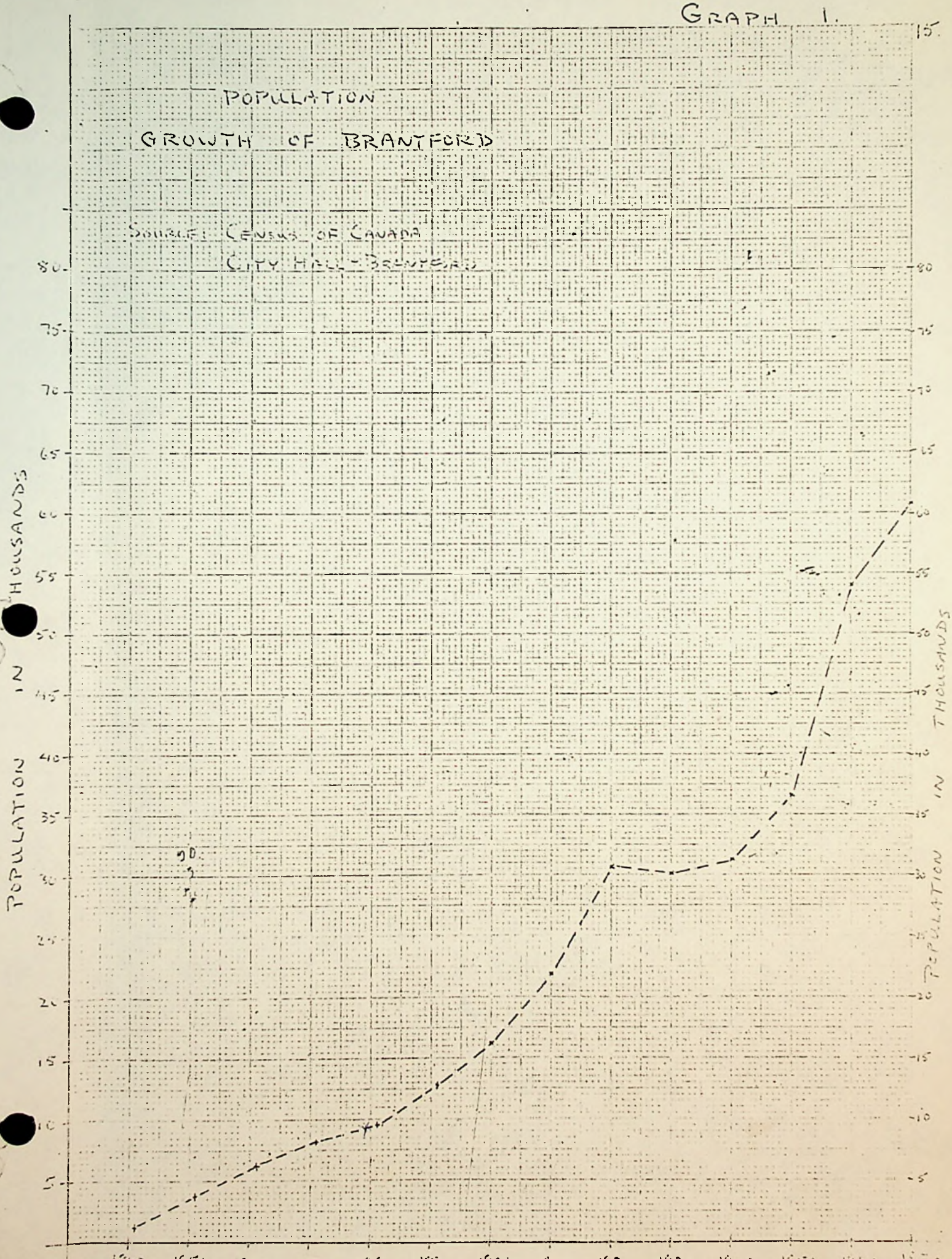

Table 3 Industries in Brantford in 1875

Source: 1875 Directory of Brantford
Personal Research

Agricultural Implements, Foundries, and Metal Goods

1. Britannia Foundry
2. Sulky Rake Mfg. Co.
3. J. O. Wisner and Sons
4. Victoria Foundry
5. Waterous Engine Works
6. Kirby Mower and Reaper Works

Carriages

7. Provincial Carriage Factory
8. Brant Carriage Factory
9. Ontario Carriage Works
* 10. Brantford Carriage Works

Wood Products and Building Contractors

11. Brantford Planing Mill
12. Sash and Blind Factory
13. Shultz and Costin
14. J. Tutt Planing Mill
15. Ontario Planing Mill
16. Thos. Large Contractors
17. J. Henry, Contractor
18. Gregor and Scott
19. J. Builder Furniture
20. Fowler Match and Paper Box
21. Elliott Barrels
22. The Broom Manufactory
39. Wm. Pattison Cabinet and Furniture

Cigars and Confectionery

23. A. Fair and Co.
24. Soda Water Mfg. Co.
25. Ice Establishment
26. Leeming and Paterson

Soap, Potash and Starch

27. Hazelton Soap and Potash Mfg.
28. Dominion Starch Works
29. Brantford Soap Works
30. C. Jarvis Soap Mfg.

Flour Milling

31. Draper Flouring Mills
32. Brantford New Mill
33. Plewes Flouring Mill
34. The Brant Mills

Leather Working

35. F. Ott Sheepskin Factory

Brickyard

36. Thistle Brick Yard

Stoneware

37. W. E. Welding Co.

Woollen Mills

38. Slingsby's Woollen Mill

N.B. The numerals are keyed to Map 3.

for the area immediately around the town. Wheat production and exports of this grain had grown dramatically during the period 1850-1870. Ontario was the leading wheat producer in Canada by the end of 1867. Coupled with the wheat boom was a general farm labour shortage. The result was a increasing demand for cheap agricultural implements.

Much of the "heavy" industry in Brantford between 1850-1875 developed in response to this agricultural demand (Appendix 1). All of the new foundries devoted a major part of their production to farm implements. After 1870, a heavier emphasis towards farm machinery can be noted, with the establishment of the A.Howell Sulky Rake Co. in 1870, and the A. Harris Kirby Mower and Reaper Co. on Colborne Street in 1871.

These metal working industries tended to be concentrated near the Great Western Branch line rail, running down Clarence Street or in the central part of the town, just to the north of the Grand River Canal, and on the main thoroughfares, Colborne, Dalhousie and Dumfries Streets (map 3). The Buffalo and Brantford Railway line, which was at the northern edge of the built up portion of the town, was too far away from the canal and the main roads to offer much attraction to industry.

A new element in Brantford industry, the carriage manufacturer, was introduced into the town during the years 1857, 1858, 1866 and 1871 (Appendix 1). Carriages, sleighs and wagons were the primary means of transportation within the local region. The farmers relied on these vehicles to get their goods from the farm to the town market. The canal and railway lines assumed importance for inter-regional transportation.

The second largest sector of the industrial pattern in 1875 was held by the wood working and building contractors. The majority of these firms were a response to the growth of the town itself, with the resultant demand for housing, furniture and building supplies. With the growth of exports and the development of the

cigar and confectionery trade, firms were set up to provide containers for the goods (barrels and paper boxes).

The firms of this branch of industry appear to have a more scattered distribution pattern, by and large tending to be to--wards the peripheries of the town, in the less heavily settled areas. Since the bulk of their trade would be local, and since they would be utilizing steam power by 1875, their location is not significantly related to either of the rail lines or the canal.

The flour mills and the single woolen mill were all located on the canal or the Grand River to take advantage of the available hydraulic power.

Generally, then, it can be seen that the majority of the industrial firms preferred a location near the centre of the town. It was here that all three modes of transport, rail, road and canal, came together. The centre also offered the greatest oppor--tunity for commodity exchange. In the period 1850-1875, land was available for industry. The industrial firms tended to be of the workshop type, with small areas of land required. Many of the industries in Brantford in this period would build up two or three stories rather than spread outwards laterally. In addition, the attitudes of the citizen body to industry were different than in our day. Industry was synonomous with advancement and prosperity, and civic attitudes were more oriented in these directions. Smoke, noise and dust seemed to be less of a concern in these early days than at the present time. Thus it is apparent that industry in 1875 was not uncompatible with business, com--mercial, and residential land uses in the town of Brantford.

The composition of the manufacturing industries for 1875 is shown in Table 4. The major sector was the agricultural implement, foundry and metal working group, represented by only six firms (15% of the total) but having almost 42% of the total employment. Even so, by modern standards, these firms were on a

Table 4 Composition of Manufacturing Industries in Brantford in 1875

	number of establishments	numbers employed	% of total employed
Agricultural Implements, Foundries and Metal Working	6	389	41.6
Carriages	4	64	6.8
Wood Products and Building Contractors	13	287	30.7
Cigars and Confectionery	4	58	6.2
Soap, Potash, Starch	4	38	4.1
Flour Milling	4	12	1.3
Leather Working	1	30	3.2
Brickyard	1	28	3.0
Stoneware	1	11	1.2
Woollen Mills	1	18	1.9
totals	39	935	100

Source: 1875 Directory for Brantford
1875 Atlas of Brant County
Personal Research

rather small scale, averaging 65 men per company. The second largest group, woodworking and building contractors, had 33% of the total firms and 30.7% of the total employment. Here, the average number of employees per firm was 22, again indicating the workshop nature of industry at this date.

However, in spite of the workshop nature of the industry in Brantford, the industrial patterns and dominant sectors had clearly established themselves by the end of 1875.

Brantford: 1875-1900

Agriculture continued to be the dominant economic activity in Southern Ontario during this period. Although the agriculture became much more diversified in response to the needs of a growing population, wheat remained as the dominant crop. In 1881, Ontario still produced 85% of Canada's total wheat crop.[25] However, by 1891 this had dropped to 50%, and with the major opening of the west after 1900, Ontario's total fell to 15%. By 1880, Southern Ontario had become a mixed farming region, with wheat as an integral part of the cropping patterns. The major consequence of the continued significance of agriculture was the constant demand for labour saving machinery.

In Brantford, the response to these demands was reflected in the expansion of the A. Harris Mower and Reaper Works and the emergence of the Cockshutt Plow Company. These two firms played the dominant role in the economic affairs of the city.

The beginnings of the A. Harris Company in 1871 were certainly modest, occupying as it did a small building on Colborne Street and employing only 45 men. However, the company grew rapidly. In 1882, a site on south Market St. was obtained, and an expanded factory built here. The facilities were enlarged by a further building project in 1888. In the meantime, this company had begun to establish a wide reputation with its machinery exports, not only in Canada[20], but also in overseas markets. A revolutionary invention in 1890, the open-end binder, which enabled a farmer to cut grain regardless of the length of the straw, gained an international reputation for the company.[26]

The 1890's proved to be a decisive decade for this firm. On October 1, 1891, the A. Harris Company amalgamated with the Massey Manufacturing Company to create the Massey-Harris Company Limited. Before the end of this year, the J.O. Wisner Company, manufacturers of seed drills, cultivators, harrows and sulky rakes was absorbed by Massey-Harris. In 1895, the Verity Plow

Company, which had come to Brantford only three years earlier, became affiliated with Massey-Harris. With this dramatic growth, the Massey-Harris Company was the single largest industrial employer in Brantford by 1900.

The Cockshutt Plow Co. started its operations in Brantford in 1877, the year Brantford was incorporated as a city. Employing only five men, it was engaged in the manufacture of plows, cul--tivators, rollers and corn planters. The original site of the firm was on south Market St. (Map 4). The site was expanded several times during the next twenty years, through the addition of new buildings. In 1898, a major reconstruction of this plant took place. In 1903, having again outgrown its facilities, a completely new plant was constructed on a 30 acre site on Mohawk St. By the end of the century (1900), the employment provided by this company had grown to about two hundred men. The major growth period for the Cockshutt firm would prove to be the first fifteen years of the twentieth century.

The growth of the agricultural implement industry in Canada, and particularly in Brantford, was directly related to the opening up of the Canadian West. Population growth in the West in the latter part of the nineteenth century was relatively slow, in--creasing from approximately 160,000 in 1886 to about 419,000 in 1901.[27] In spite of a poor overseas grain market, inadequate rail transport from the interior, and strong competition from the American West for new settlers, the Canadian West was being opened up. The Prairies were coming to the verge of the great land rush that started in 1901. The years 1901-1914 would prove to be the period of Canada's largest immigration, and for the West, the period of greatest increase in land settlement.

The period 1875-1900 was in general a time of slow growth for all of Canada. In fact this period was characterized by a negative net migration, with the bulk of the loss going to the United States.[28] This is in direct contrast to the immigration patterns after the turn of the century.

Compounding the situation was a world wide depression that had started in 1873. This depression had a retarding effect on immigration and market expansion for much of the last twenty-five years of the nineteenth century. Although Canadian growth did not cease completely, the overall expansion of the economy was drastically reduced. The depression of course affected Ontario and Brantford in much the same way as the rest of Canada. Growth continued, but in a reduced fashion. Ontario's population grew from about 1.6 million in 1871 to about 2.2 million in 1901. Brantford grew from about 8200 in 1871 to about 16,200 in 1900.

A major growth force in this period was the adoption of a protective tariff (the National Policy) by the Canadian government in 1879. This policy was designed to promote the growth of manufacturing industries in Canada. Although the tariffs did not aid growth in the Maritimes, industrial development in Central Canada increased at a rapid pace. Of particular significance to Brantford was the protection given to the farm implement and textile industries.[29] Brantford's industrial progress particularly in the farm implement field was assured.

With a growing industrial labour force, Brantford became increasingly more attractive to new industry. The Scarfe Varnish Company moved to the city from Windsor in 1878, locating first in a small building on Victoria St., and then moving to the present location on Greenwich St. shortly afterwards. The Pratt and Letchworth Malleable Iron Foundry was a major branch plant of a firm in Buffalo. The firm took over the Grand Trunk Railway car and machine shops on Wilkins St., which had been vacated by the Railway Co. in 1895, when they moved their rail car shops to London. Established in 1900, this firm soon became a significant employer in Brantford. The temporary depression in the city resulting from the loss of the railway shops was quickly resolved by the continued influx of new industry and the expansion of existing firms.

Further improvements had taken place in the facilities offered by the city to industry. Starting in 1885, electrical energy became available, initially only for lighting purposes, but after 1893, with the formation of the Brantford Electric and Operating Company, for industrial uses as well. The old Grand River Canal was employed by this company in the generation of power. Full scale development of hydro energy would take place in Ontario and in Brantford in the first decade of the twentieth century. Nevertheless, the availability of power was a factor in attracting the Pratt and Letchworth Iron Works to the city.

In 1884 steps were taken towards the provision of a general hospital for the city. Through the generosity of a citizen, John Stratford, a site and buildings were granted to the city on Terrace Hill.

Provision of water for domestic and industrial uses took place in 1887 when a new waterworks system was initiated in the Holmedale area of Brantford.

Still further improvements were made to Brantford's trans--portation system. On September 9, 1886, a street railway service was opened, and in 1894 the Brantford, Waterloo and Lake Erie Railroad was opened, to connect with the Michigan Central system at Waterford. However, still missing was the passage of the main line of the Grand Trunk Railway through the city.

Brantford in 1900

The manufacturing industries in Brantford in 1900 are summarized in Appendix 2 and their locations shown on Map 4.

The heavy concentration of manufacturing within the core area of the city is very apparent. In 1875, approximately 69% of the industries were within a half mile radius of the town hall; in 1900 this percentage distribution remains unchanged. In ab--solute terms, the number of firms has increased from 39 to 62.

In 1875, 27 of these firms were within the half mile radius, and 12 were outside. By 1900, 43 firms were located in the core area while 19 were outside of this.

The majority of these core firms tended to occupy rather small sites, and to employ, on the average, less than 25 men. The major exceptions to this fall into three categories:

a)firms such as the Victoria Foundry (Wm. Buck) and Wm. Paterson and Son who continued to occupy their same sites as in 1875 in spite of increased numbers of employees.

b) new firms, for example, the Goold, Shapley and Muir co., that took over existing factory sites that had been either sold or abandoned.

c) firms such as Massey-Harris, and Waterous Engine Works, that had outgrown their "downtown" locations, and decided to make use of the extensive but relatively unused properties just to the south of Colborne Street and the old Grand River Canal.

These lands south of the canal were very flat, and much lower than the rest of the city. Some danger of flood threatened parts of the flats. The presence of the canal gave this area further undesirability. Very little residential building had taken place here even by 1900. And yet, for industry in 1900 this land area had certain advantages. It was still within the core of the city, but without the pressures of a growing residential population. More important, there was available space for expansion, and the area was well serviced by railway transportation. The main access routes, Colborne St., Brant Ave., and West Street were still conviently nearby. Finally, the initial development of electrical energy took place along the canal system, within easy reach of these properties.

The two mills involved in textiles (Dominion Cotton Co.) and woollen goods (Slingsby Co.) were located along the hydraulic canal in Holmedale, to take advantage of the water power available at this site.

The major changes in the locational patterns of the industries are twofold:
a) expansion took place into the peripheral parts of the city particularly into the empty and available property of the old Navigation Company. The shift to the Mohawk-Greenwich area was made primarily because land was available and the area had not been extensively used for residential purposes.
b) industry began to take advantage of the Grand Trunk rail line (former Brantford, Buffalo Line) in the northern part of the city. Again, land was readily available here, with the added advantage of rail transportation.

Brantford's "heavy" industry was beginning to move away from the city core, concentrating instead near the rail lines in the northern areas, or on the flats south of the canal.

The carriage factories started to display a similar pattern. The large firms, AdamsWagon Co. and Brantford Carriage Factory, both had located outside of the core, the former on Mohawk St. and the latter on Pearl Street near the Grand Trunk Railway. The carriage firms remaining within the core area were all-small operations.

By 1900, the food, beverage and confectionery firms, again being of relatively small scale, were noticeably concentrated within the city core. Such firms in 1900 could be considered to be the "cleanest" types of industry and hence still quite compatible with the downtown commercial and residential land uses.

Employment data, broken down by industrial group, is lacking for Brantford for 1900. Furthermore there is variance in the information reported by the Brantford Expositor, Brantford Courier and the Census of Canada. The data is summarized in Table 5.

Since there is only minor variation between the Courier and the Census, it was decided to use the partial data given by the newspaper (Table 5).

Table 5 Employment Data for Brantford for 1900

source	number of establishments	total employed
1899 Brantford Courier	39	3639
1901 Brantford Expositor	not given	2928
1901 Census of Canada	44	3603

Firm	numbers employed	% of total employed
Massey-Harris Co.	800	22
Canada Cycle and Motor Co.	400	11
Waterous Engine Works	390	10.7
Verity Plow Co.	270	7.4
Wm. Buck Co.	264	7.3
Cockshutt Plow Co.	200	5.5
Dominion Cotton Co.	200	5.5
Wm. Paterson and Son	150	4.1
Goold, Shapeley and Muir	110	3.0
Slingsby Co.	110	3.0
Brantford Carriage Co.	100	2.7
Schultz Bros. Co.	75	2.1
Farmer's Binder Twine Co.	70	1.9
	3,139	
26 other firms	500	(approx.) 13.8
total	3,639	100

Source: Brantford Courier 60th Anniversary Edition 1899

The dominance of the Massey-Harris Co. is outstanding. This one form employed 22% of the total employment in manufac--turing in 1900. Its total alone exceeds the combined total of the twenty-six other firms listed by the Courier. The employment provided by all of the firms involved in the production of farm implements (Massey-Harris, Verity, and Cockshutt) was 34.9% of the total. The firms listed as "foundries, farm implements and metal goods" employed 62.5% of the total.

By 1900 Brantford could be counted among the modern industrial cities of Canada. It had passed through the infancy stages of industrialization during the last half of the nineteenth century, marked by small scale workshop type operations. At the turn of the century, industry in the city was dominated by large scale modern factories. The major sectors of the Brantford economy were in--delibly stamped with the mark of two farm implement manufacturers, which would grow into world wide corporations during the twentieth century.

Brantford: 1900-1925

During the period 1860-1900, the foundations had been laid in Canada for the dramatic growth cycle that began just before 1900. A new force, a federal government, that could speak on behalf of the provinces of the new Dominion of Canada had been created in 1867. This new political force could act in the best interests of the country in face of internal and external pressures. A major technological innovation, the railroad, had been pushed across the western lands to the Pacific coast. Internal branching of the railways, slow to begin, was progressing by 1900. A National Tariff Policy that applied to the whole nation, encouraged a prospering industrial economy to grow further. Thus by 1900, the necessary preconditions for economic "take-off" had been established in Canada. The take-off itself took place in the period 1896-1914.[30]

The opening of the Canadian West was a instrumental factor in Canada's economic growth. By 1900 the best agricultural lands

in the American West had been taken up without having satisfied the demand for land. Americans began to look to the Canadian West where there was still abundant free land. Agricultural and industrial changes in eastern and central Europe uprooted a large number of people who looked to North America for a fresh opportunity.[31] An active advertising campaign by the Canadian government acted as yet another stimulus. The result was the largest immigration period ever in Canadian history, with 1.7 million immigrants coming to this nation. The negative net migration 1861-1901, was turned into a large positive net migration.[32]

Population in the Prairies grew from about 419,000 in 1901 to 1,323,000 in 1911. Alberta and Saskatchewan became provinces in 1905, and in 1912, Manitoba's present boundary was established.

Wheat became the major export staple of Canada, generating a boom period for the nation's economy. The potential of the rail--ways was for the first time fully realized as people, lumber, and machinery were sent into the interior from the eastern provinces. The movement of wheat to eastern points, in turn fostered growth in handling, milling and port facilities, The opening of the western wheat lands created a huge demand for mechanized equipment. The protectionist tariff policy, which had allowed the growth of the farm implement industry had begun to pay dividends. The farm machinery industry of Brantford expanded still further.

Although the Massey-Harris plant continued to increase its production, Brantford's industrial story in this period is essentially that of the Cockshutt Plow Co. This firm had started in Brantford in 1877, and had experienced considerable growth by 1900. In 1903, a completely new foundry complex was constructed on Mohawk Street. The firm prospered as sales to the Western farmers increased. The Company, through its exports, soon gained an international reputation. The company expanded its production lines into the carriage and wagon trade, when in 1911, it purchased the Brantford Carriage Co. on Pearl Street and the Adams Wagon Co.

on Mohawk Street. The international sales force of the Cockshutt Co. was able to maintain the production of carriages and wagons. However, the days of the carriage and sleigh manufacturers were numbered by the increased use of the automobile. The newly acquired wagon factories quickly adapted to the changing situation and began the production of motor truck bodies and later semi-trailers. In 1916, the Baynes Carriage Co. of Hamilton was bought out. In 1924, through further acquisitions in Alexandria and Montreal, the Brantford Carriage Co. was re-organized as the Canada Carriage and Body Co.

The period 1900-1920 was the time of Brantford's most rapid population growth. In 1900, the population of the city was about 16,200; by 1920 this had risen to 30,600. the principle reasons for this growth can be attributed to two situations: a) the rapidly growing industrialization of Brantford in response to the general prosperity of Canada and b) the general trend towards urbanization at the expense of rural depopulation that was be-
-coming evident in Southern Ontario.

Prosperity and growth, both in industry and in population, were the order of the day for Brantford. A slight recession in 1907-1908 temporarily slackened the pace but it soon passed and growth picked up once again. The onset of war in 1914 coincided with the initial decline in the immigration flow into Canada. The war brought high demands for Prairie wheat, with high prices. The war effort generated increased production, particularly of munitions and war machinery. The Dominion Steel Products Co. was founded in Brantford in late 1916 for the production of gun turrets and mounts, and ship propeller shafts. The Ker-Goodwin Co. produced in excess of 4.5 million explosive shells during the war years. The war encouraged extensive industrial research programs in Canada; in 1916-17 the National Research Council of Canada was created to help industry by research. [33]

The years 1912-1921 saw the confrontation between the western farmers and the urban interests of the east. The essence of the conflict was the National Policy of protective tariffs still

being pursued by the federal government. The farmers desired reciprocity or free trade with the United States and Britain in order to increase their market potentials. By 1921, the farmers, faced by increasing costs, were clearly caught in the boom-bust cycles created by fluctuating world demands and prices. However by 1921, Canada was clearly emerging as an industrial-urban society. In 1921 the rural population of Canada was 4,436,041; the urban 4,352,442; agricultural production valued at $1,403,686,000 and industrial production at $2,747,926,675. From this point forward, agricultural would continue to decline relative to industry.

Perhaps the most significant trend in the evolution of Brantford's industry is the widening and diversification that took place in this period. Chemicals, billboards and signs, electrical equipment, sporting goods, floor waxes and polishes, roofing products and stationery products were all developed by 1925. However, the basic twentieth century pattern of manufac--turing in Brantford had been established: emphasis on agricultural implements, foundries and metal goods as the basic group dominated by a few companies; a large number of varied manufacturing establish--ments employing a small labour force, but in sum making a signifi--cant contribution to the economy of the city.

Brantford in 1925

The first decade of the twentieth century was a prosperous one for Brantford. These boom years saw rapid growth in popula--tion and a large increase in the number of new factories.

An electric rail line, the Lake Erie and Northern, was in--corporated by Brantford business men in 1911, in a search for additional outlets for their products on Lake Erie. The original project was for a steam railway to Port Dover and a north line to Galt. Electrification of the line was completed by mid 1916.[34]

The Brantford and Hamilton Electric Railway Co. built a line between the two cities in 1908. The line between the two cities

was in operation until 1931, and was used extensively for package freight and passenger traffic.[35]

Perhaps the most significant change in rail transportation for the city was the decision, in 1905, to place Brantford on the main line of the Grand Trunk. This decision helped growth from 1905 to 1920, but unfortunately it had come too late. The possibilities are good that if the city had been on the main line from 1854 onwards, its rate of growth and significance in Southern Ontario could have been considerably greater.

Electrical energy had become available to the city just before the turn of the century. However, tha major electrification of the city took place between 1905 and 1913 by which time the energy generated at Niagara was being used estensively for lighting and for industry.

The manufacturing firms in Brantford in 1925 are summarized in Appendix 3 and their locations shown on Map 5.

The distribution pattern of the industries changed form 1900 to 1925. Most noticeable is the trend away from the core area of the city($\frac{1}{2}$ mile radius of the city hall). In 1900, 69% of the industries were within this core; by 1925 this had dropped to 46%. In absolute terms there had been 43 firms in the core of 1900; in 1925, in spite of an overall increase of 35 new firms, only 45 were in the core.

The areas that had started to attract industry by 1900 became the zones of growth. This is particularly true of the lands adjacent to the C. N. R. mainline running across the northern end of the city. Neglected by industry until the late 1900's, this area grew rapidly in this period.

The flats to the south of the city experienced further growth. The major change here was the relocation of the Cockshutt plant to the Mohawk St. site.

With the development of the Lake Erie and Northern Railway, and with the continued availability of hydraulic power, a small industrial area began to emerge in the Holmedale area on the western edge of the city.

A similar small growth had taken place near the city limits on West Colborne St. Of particular significance here was the establishment of a division of the Steel Co. of Canada for the production of nuts and bolts.

By 1925, all of the major foundry and farm implement firms were located either in the north end or on the river and canal flats. Small specialty tooling and machinery firms retained their core location. These firms were not geared to mass production, and were still essentially small and "clean" manufacturers.

The carriage sector of manufacturing retained the 1900 pattern of distribution. Small firms were in the core area, while the two major companies, now controlled by Cockshutts, were outside.

The character of manufacturing in the core area in 1925 increasingly tended to become dominated by the food, tobacco, beverage and confectionery sector, with printing and small specialty firms.

These locational changes can be explained in terms of the overall growth of the city. With population growth, the core increasingly became commercial and institutional in nature. Land values rose quickly as demand for core space accelerated. The automobile was generating heavier traffic and congestion in the downtown area. In addition the nature of industry itself had changed into large scale mass production operations. In 1925, land was available near the margins of the city for industrial purposes.

By 1925 then a pattern of industrial concentration can be recognized. Of these zones the most important are the areas

associated with the C.N.R. line in the north end of the city, and with Greenwich-Mohawk Streets.

Employment data for 1925 is not available. However, the Census of Canada provides a breakdown of employment by occupations for Brantford for 1921; the 1931 Census provides a breakdown of employment by industry.

Table 6 summarizes the employment data for both of these census years. It is apparent that the labour force in manufacturing grew very little from 1921 to 1931. This "static" situation held true for the growth of the city from 1920-1940 (see Graph 1). By contrast, the labour force in 1900 had been 3639.

Brantford's industrial employment in the 1921-1931 period was again dominated by the foundry, agricultural implement and metal goods sector. However the percentage of total employed attributable to this sector had fallen from 62.5% in 1900 to 54.5% and 45.6% in 1921 and 1931 respectively.

The contribution of the two major farm implement firms, Massey-Harris and Cockshutts, to the labour force follows a similar trend. These companies employed 34.9% of the total manufacturing labour force in 1900; by 1931 this had dropped to 24%.

Both of these trends are due to the diversification of the industrial base of the city during this period.

Thus by 1931, Brantford remains an industrial city dominated by the iron and steel sector, and the agricultural implement sub-group. However, strong growth during this period resulted in a broadening of the city's manufacturing base.

Table 6 Employment Data for Brantford: 1921 and 1931

	1921		1931	
	numbers employed	% of total	numbers employed	% of total
Iron and Steel	3260	54.5	2806	45.6
Textiles	919	15.3	1208	19.5
Wood and Paper Industries	643	10.7	817	13.2
Food, Beverages, Tobacco, Confectionery	326	5.5	445	7.2
Non-ferrous Metals	136	2.3	218	3.5
Non-metallic Mineral Industries	40	.7	142	2.3
Animal Products	154	2.6	41	.7
Chemicals	44	.7	135	2.2
Miscellaneous	452	7.6	360	5.8
Total Labour Force in Manufacturing	5974	100	6172	100

Source: 1921 Census of Canada
1931 Census of Canada

Conclusions

Industrial development in Brantford passed through three definite phases between 1844 and 1925.

The first of these, extended from 1825 to 1875. The period is characterized by pioneer industries emerging in the village based upon the needs of the rural agricultural community. The first such activities were grist and saw mills. The first grist mill in 1825 focused attention on Brantford's site, by rendering a service that had previously been offered only in the Ancaster-Dundas area. The site took on added importance after modifications had been made in the water depth of the Grand River. The advantages for navigation in the river were quickly seized by the citizens of the village. Although construction problems prevented the full realization of the canal before 1847, Brantford did become a major exporting port for wheat, flour and timber.

The spirit of the early settlers was such that they could readily adapt to new and changing situations. When the railway era began in earnest, spelling eventual doom for minor canals such as Brantford's the citizens sought to protect their interests by actively engaging in railway financing and construction. Although their ventures did not reward their backers financially, the effects of rail transportation through Canada were major. For Brantford, the outcome of the railway building era was to bring mixed blessings. Brantford did have rail service. but was not on the main line of the companies that had the largest potential trading areas.

Industry was attracted to Brantford. From the first true "factory" in 1844, manufacturing in Brantford emphasized iron and steel products. The support industries were those characteristic of a growing agricultural service centre; woodworking, construction, tanneries, food and beverages and flour milling.

By 1875 the industrial composition pattern that would charac--terize Brantford had been established; iron and steel products dominating with agricultural implements as the largest single activity. Industry in the town still had a basic workshop or--ganization, but this would quickly change.

The majority of the industrial firms (69%) were located near the town's core in 1875. The main access roads intersected here; the Great Western Branch line ran along Clarence St. into the core. Location near the business and commercial centre of the town meant the opportunity to maximize a firm's potential. The population of the town was still relatively small and concentrated near the core area.

The second phase, 1875-1900, was a period of moderate growth for Brantford in both population and in the number of new in--dustries that were attracted. Possibly the most significant events of the period for Brantford were the adoption of protective tariffs by the federal government and the increasing emphasis on the opening up of the Canadian West. The former ensured the possibilities of growth for Brantford's farm implement and textile industries; the latter provided the opportunities to realize the growth potentials. The two major farm implement firms, Massey-Harris and Cockshutt Plow Co. emerged in this period.

The composition of industry remained essentially the same as in 1875, with the continued domination of iron and steel products, particularly farm implements.

The distribution of the firms remained similar to 1875. However, the larger firms, geared to mass production and requiring extra space were beginning to move. The flats just south of the old canal came into extensive use. For the first time, industry was attracted to the rail property in the northern part of the city.

Phase three, 1900-1925, was a boom period for Brantford, marked by rapid population and industrial growth. The farm im--plement firms expanded, absorbed other firms, and built up international organization. However, the most significant aspect of this growth was the introduction of a large number of new manufactured products. This diversification process would ensure a continuing major industrial role for the city, without the overwhelming concentration in a limited sector such as farm machinery. As shown previously, although the essential industrial structure in 1931 remained similar to that of 1900, the degree of dominance was less marked.

The locational patterns in 1925 have become more clearly defined. Firms are beginning to move away from the core area, and concentrate in more spacious areas. Three elongated industrial zones are apparent by 1925, although they are not sharply defined: a corridor associated with the C.N.R. branchline running down Clarence Street; a zone on the south side of the old canal along Greenwich St., a corridor associated with the C.N.R. mainline running across the northern part of the city.

Through the period 1900-1925, Brantford had grown to be--come one of Canada's important industrial cities. However it was becoming increasingly apparent that Brantford was too close to the head of Lake Ontario, and the industrial complexes that were evolving there. Without any special advantages to offer to in--dustry, Brantford's competitive position gradually deteriorated. The patterns of population and industrial growth in Southern Ontario increasingly focused attention away from Brantford. The depression of the 1920's and 1930's merely hastened this period of difficulty for Brantford.

Footnotes

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2 The Brantford Courier, Christmas, 1899. Old Boys and Sixtieth Anniversary Edition. Brantford Public Library.

3 These three works are cited in the bibliography.

4 A listing of the available directories is given in the bibliography.

5 See the bibliography for a list of these special editions.

6 Census of Canada, 1901, p. vii

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8 The Brantford Expositor, June 30, 1967, Special Centennial Edition, p. 1E.

9 B. Hill, "The Grand River Navigation Company and The Six Nations Indians", Ontario History, March, 1971.

10 Loc. cit.

11 F.N. Walker, "Birth of the Buffalo and Brantford Railway", Ontario History, 1955, p.81.

12 Report of the Board of Directors of the Grand River Navigation Company, Brantford, May 1847, p.7.
Timber includes: squared pine; oak; saw logs; sawn lumber, Agricultural products are mainly wheat and flour.

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Appendix 1

A Chronological Sequence of Dates of Establishments of Manufacturing Firms in Brantford, 1825-1875

1825 Marshall Lewis: grist mill on the Grand River
1830 Wilkes Distillery
1831 Wm. Kirby Distillery
1832 Wm. Spencer Brewery
1833 Calvin Houghton Brickyards
1836 Ed. Blacker Brickyards

1844 P.C. Van Brocklin's Brantford Foundry
1847 Goold-Bennett and Co., Union Foundry
1848 S. Cole Sash, Blind and Agricultural Implements
1849 Morton and Co. Stoneware Factory
1852 Brantford Planing Mill
Victoria Foundry (Wm. Buck)
1853 F. Ott Sheepskin Factory
Brittania Foundry (B. and G. tisdale)
1856 Brantford Soap Works
Flour Mills (J. Kerby)
1857 G. Wilkes Grist Mill
A. pence Provincial Carriage Works
J. C. Wisner Fanning Mills
1858 Woods Lyon (Brant Carriage Factory)
1863 Leeming and Paterson
1866 S. and J. Hext (Brantford Carriage Works)
1869 Geo. C. Schultz Rake Mfg.
1870 A Howell Sulky Rake Mfg.
1871 J. S. Hamilton and Co.
A. Harris and Co. (Kirby Mowers and Reapers)
Cleugh and Harris (Ontario Carriage Factory)
1872 Holmedale Woollen Mills (Wm. Slingsby)
1873 A. Fair Co.

Appendix 2 Industries in Brantford in 1900

Foundries, Agricultural Implements, Metal Goods

1. Wm. Buck Stove Factory 2 Centre St.	stoves (all kinds), furnaces
2. Goold, Shapely, and Muir Co. Corner Clarence and Wellington	windmills, bee keeper supplies, pumps
3. Chalcraft Screw Co. 45-47 Dalhousie St.	screws, nuts, bolts
4. Ham and Nott Co. 81-83 Elgin St.	refrigerators, spring beds
5. Canada Cycle and Motor Co. Elgin St.	bicycles and small motors
6. Cockshutt Plow Works corner South Market and Greenwich	plows
7. Waterous Wire and Nail Works 20 Jex St.	drawn wire and nails
8. Waterous Engine Works South Market St.	pumps, sawmill, engine, mill machinery
9. Verity Plow Co. foot of Murray, south of the canal	agricultural implements
10. Massey-Harris Co. South Market St.	agricultural implements
11. Pratt and Letchworth Malleable Iron Works Wilkins St.	iron castings
12. Fowler Spring Bed Manufacturing 59 Wellington St.	spring beds
13. Brant Brass and Iron Works 11 Dalhousie St.	brass, iron castings
14. Brantford Silver Co. 207 Colborne St.	metal platings
15. Bailey Cutlery Co. corner Queen and Dalhousie	cutlery, shears

Carriage Works

16. Brantford Carriage Factory 175-181 Pearl St.	carriages, sleighs, wagons
17. J. Simpson Mfg. Co. 23 Brant Ave.	
18. A Spence and Son Co. 271-282 Colborne St.	
19. Wm. Brown Co. 458 Colborne St.	
20. C. J. Scott 76 Dalhousie St.	
21. Lyons Woods and Oberlin J. C. 16 Darling St.	
22. Adams Wagon Co. Mohawk St.	
23. G. Hext Co. 75 Dalhousie St.	

Woodworking

24. Schultz Bros. Planing Mill
35-37 Albion St.
25. Havill and Whitham Planing Mill
135-137 Clarence St.
26. Hickle, Dyment and Sons Mill
284 Colborne St.
27. Jesse Bartle Planing Mill
176 Darling St.
28. Thos. Savor Lumber Yard
corner West and Duke
29. Wm. Edwards
18 Grant St.
30. J. Mann and Sons
323 Colborne St.

} planing mills, lumber, building supplies, building contractors; sash, doors, blinds

31. Schultz Bros. Lumber Yard
corner West and Wadsworth — builder supplies
32. J. H. Belfry
7 Wellington — brooms
33. A. J. Cowen
448 Colborne St. — building contractor

Food, Beverages, Tobacco, Soap

34. Wm. Paterson and Son
34-38 Colborne St. — confectionery, biscuits
35. Halloran and Co.
31 Colborne St. (rear) — cigars
36. McHutchion Bakery
363 Colborne St. — baked goods, bread
37. T. and J. Fair Co.
435-437 Colborne St. — cigars
38. Canada Tea Supply Co.
27 Dalhousie St. — tea packers
39. Snow Drift Co.
37-39 Dalhousie St. — spices, extracts, baking powder, coffee grinders
40. J. S. Hamilton and Co.
91, 93-95 Dalhousie St. — wine importers; Pelee Island Wine Co.
41. H. B. Gardner
9 King St. — cigar factory
42. Gibson, Whitaker Co.
Queen St. and 152 Market St. — baked goods
43. Brantford Bottling Co.
26 West St. — soda water, gingerale
44. Brantford Ice Co.
1 Colborne St. — ice
45. Brantford Soap Works
23-37 Jarvis St. — tallow, soap
46. Brantford Starch Works
Canal Road — starch
47. Bixel Brewing Co.
18 Alfred St. — beer and ale
48. Wood Bros. Flour Mill
233-249 Colborne St. — flour

49. Brant Milling Co. 42 George St.	flour
50. Farmer's Co-operative Packing Co. Burford Road	meat packers

Woollen Goods, Textiles, Binder Twine

51. Slingsby's Manufacturing Co. 266 West Mill St.	woollen goods, blankets
52. Dominion Cotton Mills Co. West Mill St.	cotton textiles
53. Farmers Binder Twine 23-31 Sydenham St.	binder twine

Miscellaneous Industries

54. Workman Brick Yards south side east Colborne at city limits	bricks
55. Parker's Dye Works 40 George St.	cloth dyeing
56. J. Stockwell 76-78 Market St.	cloth dyes
57. Brantford Stoneware Co. 194 Dalhousie St.	stoneware, pottery
58. Ker-Goodwin Machine Co. 193 Colborne St.	mill machinery
59. J. B. Rouse and Co. 22 Dalhousie St.	machine shop
60. F. L. Pickering Co. 165 Nelson St.	mattresses
61. Brantford Box Co. 65 Elgin St.	paper boxes
62. Scarfe and Company 48 Greenwich St.	paints, varnishes

NOTE: THE NUMERALS ARE KEYED TO MAP #4.

Appendix 3 Industries in Brantford in 1925

Foundries, Agricultural Implements, Metal Goods

1. Williams Tool Corp. 32 Bridge St.	tools, machinery
2. Ker and Goodwin Machinists Charlotte St.	machine shop
3. Chas. E. Lake Brass Foundry 40 Bridge St.	brass and iron castings
4. Brantford Oven and Rack Co. Brock St.	ovens, baking equipment
5. Goold, Shapley and Muir Co. Clarence St.	windmills, steel towers, mill machinery, pumps
6. Steel Co. of Canada West Colborne St.	nuts and bolts, rivets
7. Happy Thought Foundry Co. 38-42 Elgin St.	stoves, heaters, furnaces, ranges
8. Ruddy Mfg. Co. Elgin St.	bedsprings, bee supplies
9. Ham Bros. Co. Ltd. 81-83 Elgin St.	refrigerators, metal cabinets, window screens
10. Brantford Metallic Plating 96 Emilie St.	plating
11. Hartley Foundry Co. 11 Greenwich St.	iron castings
12. Verity Plow Co. Greenwich St.	agricultural implements
13. Canada Valve and Hydrant 14-16 Grey St.	valves, sprinklers
14. Turnbull and Cutcliffe 26 King St.	sheet metal works
15. Cockshutt Plow Co. 66 Mohawk St.	farm machinery
16. Robbins and Myers Co. Morrell St.	fans, motors, refrigerators
17. Waterous Engine Works South Market St.	boilers, machinery

18. Dominion Radiator and Boiler Co. South Market St.	radiators, boilers
19. Massey-Harris South Market St.	farm implements
20. Monarch Tractors Ltd. 31 Sydenham St.	tractors
21. Pratt and Letchworth Co. Wilkins St.	malleable iron castings
22. Brantford Metal Co. 137 West St.	plating
23. Anderson and Marsh West St.	sheet metal works
24. Bradley Machine Co. 32 Wharfe St.	machine tooling
25. Bluebird Corporation 69 Elgin St.	washing machines

Carriage Works

26. J. Simpson Mfg. Co. 23 Brant Ave.	carriages, sleighs
27. Spence and Sons 272-280 Colborne St.	carriages
28. Adams Wagon Co. 22 Mohawk St.	carriages, sleighs, wagons, truck bodies
29. Canada Carriage and Body Co. 175-181 Pearl St.	carriages and motor bodies
30. Geo. Hext 88 Water St.	carriages

Woodworking

31. Schultz Bros. Co. 35-49 Albion St.	lumber, contractors, doors, sashes
32. Avey Lumber Co. Alice St.	lumber supplies
33. Geo. Rancier Contractor 69 Arthur St.	builder
34. Seago And Sons 182 Brant Ave.	cabinet makers
35. Ingleby-Taylor Co. 116-120 Brant Ave.	lumber; building supplies

36. East End Willow Works 430 Colborne St.	furniture
37. Brantford Willow Works 61-63 Colborne St.	furniture
38. Wilson Coal Co. 128 Nelson St.	fuel, lumber, building supplies
39. P. H. Secord and Sons 133-137 Nelson St.	building contractors
40. Schultz Bros. Lumber Yards West St.	lumber, wood supplies

Food, Beverages, Tobacco

41. Bixel Brewing and Malting Co. Alfred St.	beer, ale
42. Canada Packing Co. Burford St. at city limits	meat packers
43. Whitaker Bakery 5 Chatham St. 88-89 Queen St. 215 West Mill St. (plant #2)	baked goods, bread
44. Waddell's Ltd. 131-137 Clarence St.	preserves
45. Wm. Paterson Ltd. 34-38 Colborne St.	biscuits, confectionery
46. Burke Mineral Water Co. 17-21 Colborne St.	bottling plant
47. Brant Seed and Feed Co. 243-249 Colborne St.	flour, feed, seed supplies
48. Montgomery Mineral Water Co. 257 Colborne St.	bottling plant
49. J. McHutchion Ltd. 351-365 Colborne St.	bread, pastry
50. J. S. Hamilton and Co. 46 Dalhousie St.	wines, liquors
51. Brantford Coffee and Spice Co. 370 Dalhousie St.	packing company
52. Grandview Flour and Feed Co. 73 Darling St. 136 North Park St.	flour, feed supplies

53. Mackey's Bread Ltd. 183 Erie Ave.	bread, baked goods
54. Brantford Ice Co. 1 Greenwich St.	ice
55. Johnson Bread Co. 12-14 Lawrence St.	bread, baked goods
56. Brantford Produce Co. Ltd. 104-106 Marlborough St.	fresh fruit and vegetables
57. Kenadda Biscuit Co. Morrell St.	biscuits, candy
58. Dominion Flour Mills 16 South Market St.	flour
59. Arctic Ice Co. West St.	ice

Woollens, Textiles, Twine

60. Huron Cordage Co. Alice St.	binder twine
61. Brantford Cordage Co. Ltd. 111 Brant St.	binder twine
62. Lockwood Mfg. Co. 27 Jarvis St.	dress goods, shawls, carriage robes
63. Brantford Mill Stock Co. 31 Jarvis St.	shoddy mfgs.
64. Niagara Silk Co. Park Ave. East	gloves, hosiery
65. Dominion Dress Co. South St.	aprons, ladies' wear children's dresses
66. Kitchen Overall and Shirt Co. West St.	overalls, shirts
67. Slingsby Mfg. Co. 200 West Mill St. (#2 plant) 270 West Mill St. (#1 plant)	blankets, woollen goods
68. Watson Mfg. Co. 222-246 West Mill St.	woollen and cotton underwear

Chemicals, Paints, Waxes, Dyes

69. G. F. Sterne and Sons — industrial chemicals and cement
124 Bruce St.

70. S.C.Johnson Co. — waxes, polishes
Frank St.

71. Scarfe and Co. — varnishes, paint
35 Greenwich St.

72. Canada Consolidated Rubber Co. — rubber goods
6 Wharfe St.

Paper, Printing

73. Hampel Paper Box Co. — packaging
27-31 Bridge St.

74. Brantford Stationers Ltd. — stationery
94 Grey St.

75. Barber-Ellis Co. — stationery
114 Marlborough St.

76. Bradley-Garretson Co. — printers, book binders
24-32 Colborne St.

77. Hurley Printing Co. — printers
179 Dalhousie St.

78. Moyer Printing Co. — printers
26 King St.

Miscellaneous

79. Brantford Computing Scales Ltd. — scales, meat slicers, grinders
135 Brant St.

80. Hotham and Harper — machinists
18-20 Clarence St.

81. Dominion Signs Ltd. — billboards, signs
80 Colborne St.

82. Hygienic Dairy Co. — milk, butter
326 Colborne St.

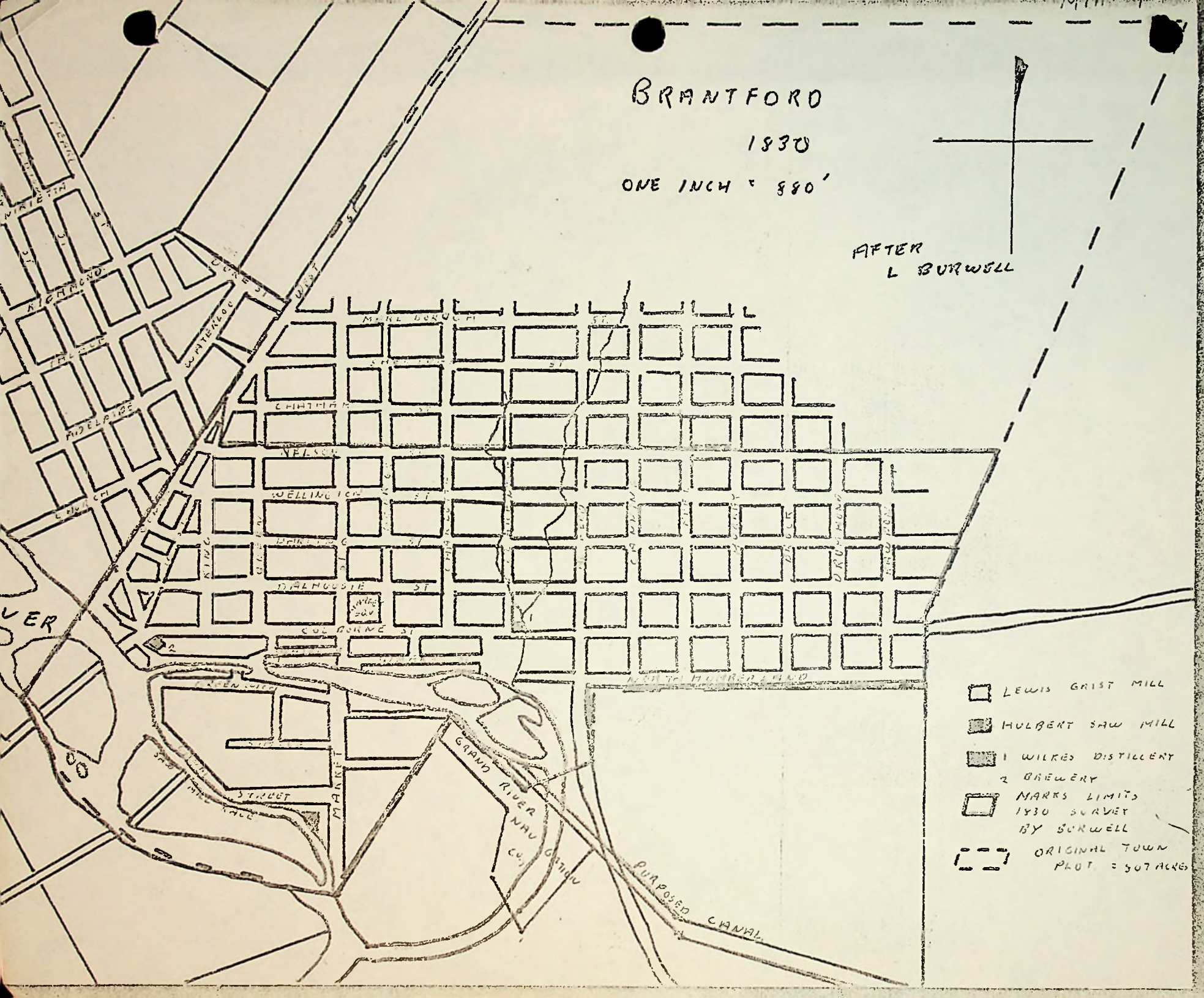
83. Cummings Button Co. — ivory and pearl buttons
209 Colborne St.

84. A. J. Reach Co. — sporting goods
5 Edward St.

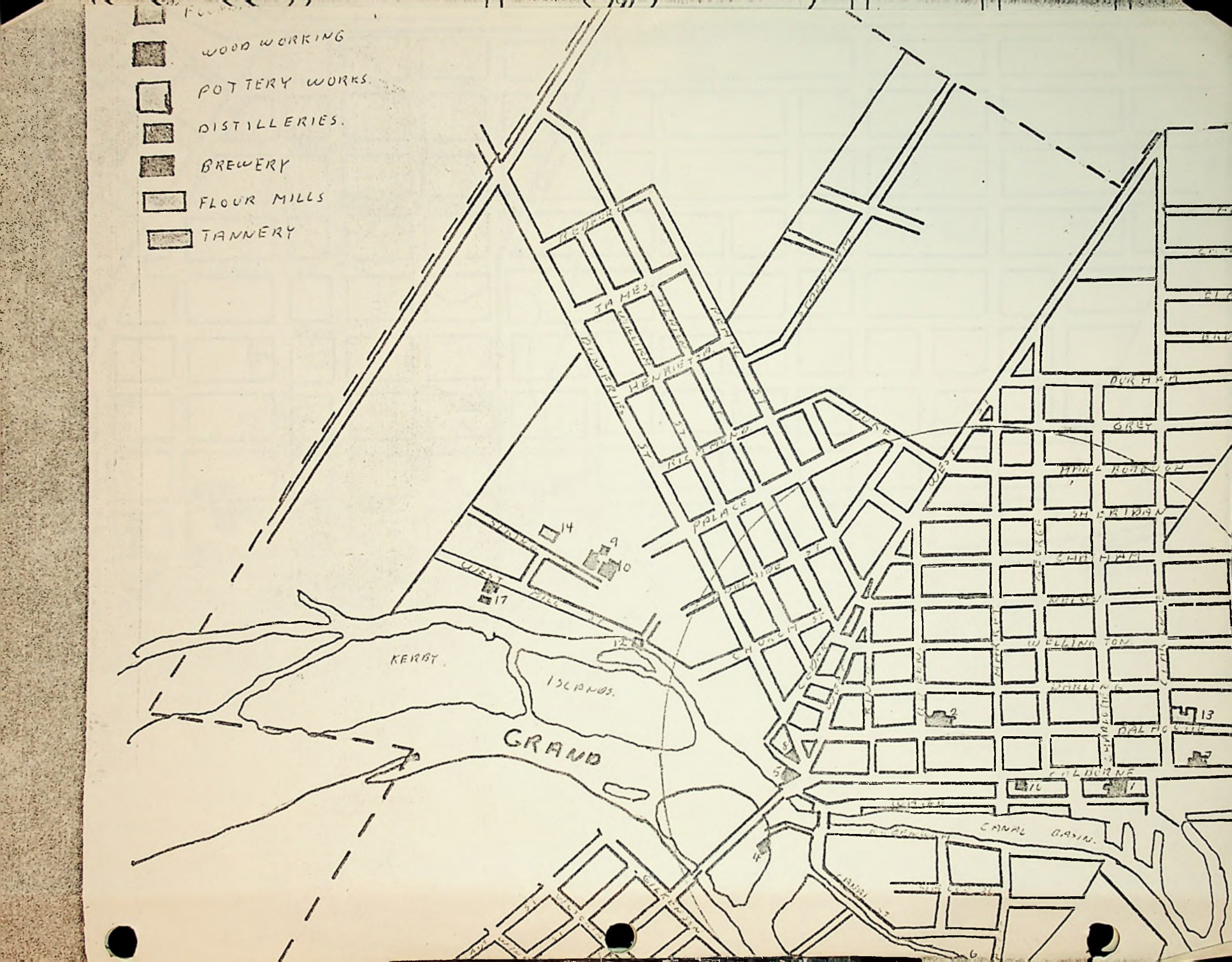
85. Schultz Bros. Brick Yards — bricks
Elizabeth St.

86. Brantford Artificial Flower Co. 13 George St.	artificial flowers
87. Brantford Pattern Works 49 George St.	patterns
88. Brant Creameries Ltd. 13-15 Grey St.	butter, cream
89. Jackson Bros. Bricks Maitland St.	brickyard
90. C.B. Wright 236 Marlborough St.	awning mfg.
91. Thermo-Electric Ltd. Morrell St.	electric heaters, metal castings, electric pads
92. J. M. Lefebvre 288 Murray St.	mattresses, pillows, cushions
93. Brantford Grinding Wheel Co. 188 Pearl St.	abrasive wheels
94. Maple Leaf Dairy 50 St. George	milk, butter
95. Terrace Hill Dairy West St.	milk, butter
96. Crown Electrical Mfg. Co. 17-21 Sydenham St.	electrical fixtures
97. Brantford Roofing Co. 22 Sydenham St.	roofing, asphalt, roof paints

NOTE: THE NUMERALS ARE KEYED TO MAP 5.


BRANTFORD
1830
ONE INCH = 880'
AFTER
L BURWELL
MARKET
GRAND RIVER
PURPOSED CANAL
LEWIS GRIST MILL
HULBERT SAW MILL
1 WILKES DISTILLERY
2 BREWERY
MARKS LIMITS
1930 SURVEY
BY BURWELL
ORIGINAL TOWN
PLOT = 307 ACRES

CITY LIMITS
GRAND RIVER
BRIDGE ST
KING ST
QUEEN
WEST ST
MARKET ST
CHARLOTTE
ALFRED
PARK
PEEL
MURRAY
BROCK ST
DRUMMOND
RAWDON
SHERIDAN


WOOD WORKING
POTTERY WORKS.
DISTILLERIES.
BREWERY
FLOUR MILLS
TANNERY
KERBY
ISLANDS.
GRAND
CANAL BASIN.
DURHAM
GREY
WELLINGTON
DALHOUSIE
CALEDONIA
PALACE
QUEEN
WEST
14
9
10
17
13


HAMILTON RD
36
CANAL BASIN
WATER WORKS
VICTORIA
MILL RACE
GRAND RIVER
MARKET
TOWN HALL SQUARE
COURT HOUSE
VICTORIA PARK
NELSON
SHERIDAN
CHATHAM
DALHOUSIE
WATER
GREENWICH ST
CANAL